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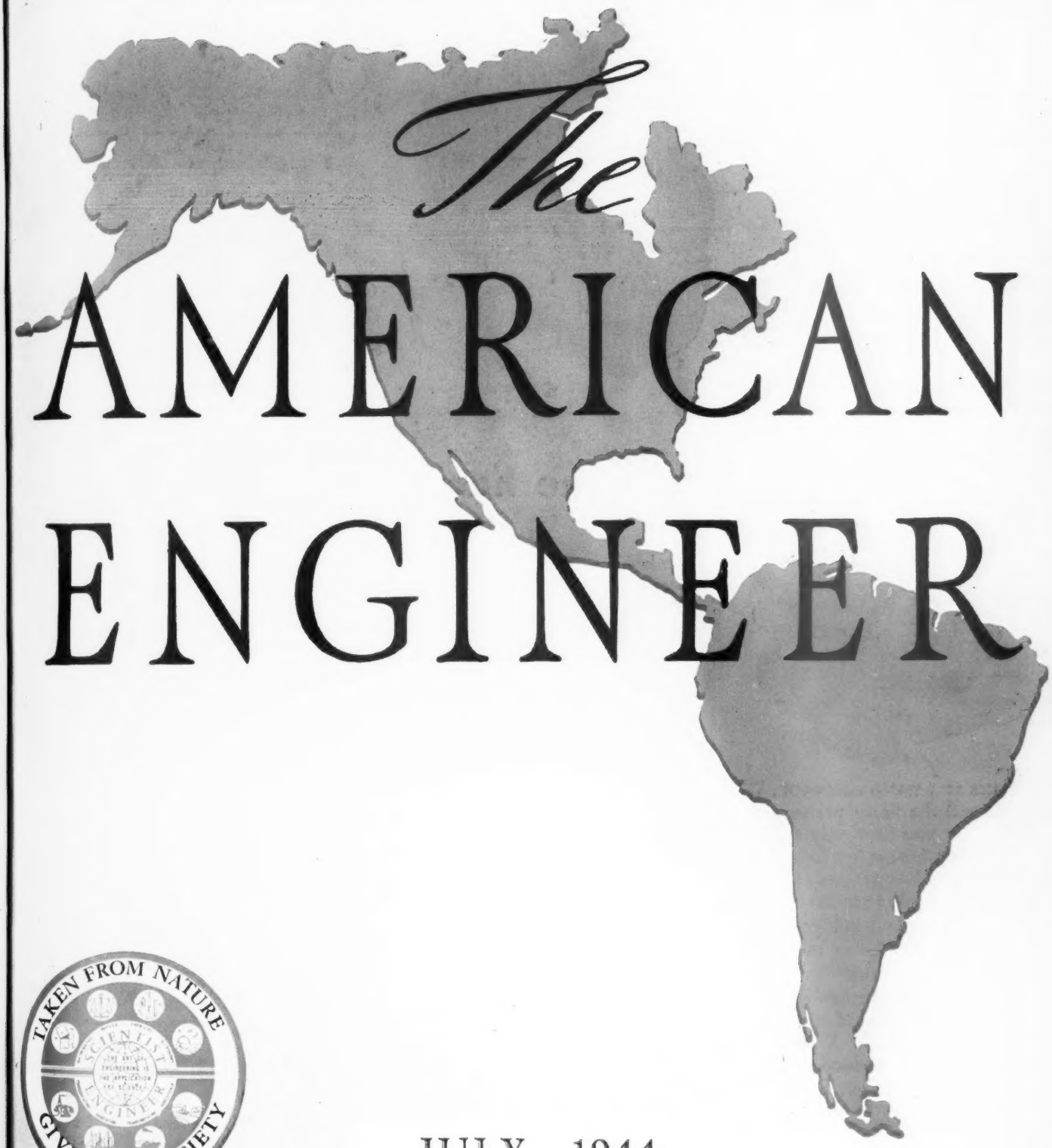

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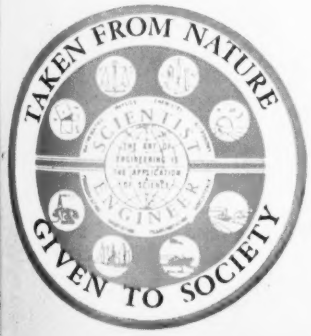

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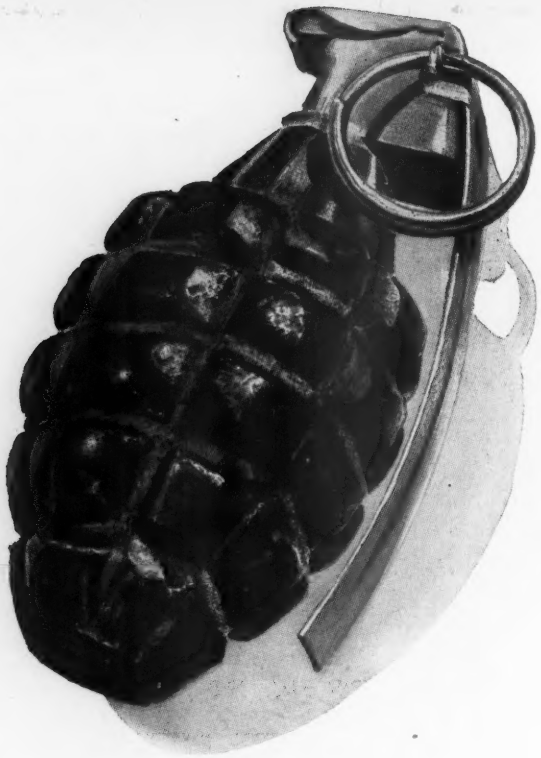

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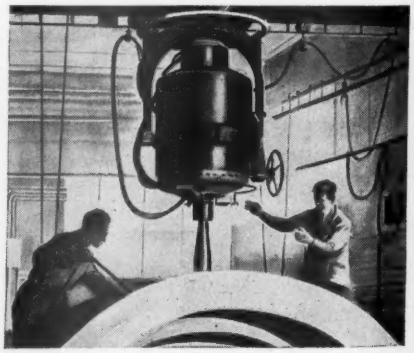

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Kindly report any errors or omissions to the Editor.

A Model Law

THAT WILL STRENGTHEN EXISTING ACTS

And At The Same Time Permit Reciprocity

THAT CANNOT PREVAIL WITHOUT UNIFORM REQUIREMENTS

Among the decisions reached at the recent Milwaukee meeting of the Board of Directors of the National Society of Professional Engineers was one that calls upon the several State Societies to take steps to strengthen the existing License Laws or Registration Acts. In so doing the Board urges that the State Societies collaborate with a view to bringing into being laws sufficiently alike to make eventually possible uniform laws throughout the United States.

At the present time the laws regulating the practice of professional engineering vary with each state. In some instances, such as the new Ohio Act, which becomes operative in the near future, the law has been drawn with a view to raising the standards of admission to practice and at the same time protecting both the public and the profession in the matter of uniform application. In other instances the law does not require written examination for qualification nor does it restrict practice to legally qualified persons. Such laws have little value, unless engineers give effect to the law by voluntary registration in numbers sufficiently large to be able to distinguish the sheep from the goats. A good State Society with sufficiently large membership restricted to registered practitioners can make even a poor law effective. For this reason the formation of a strong state professional organization should not wait on good legislation. Rather should it precede the effective law. In practice the effective law will not come into being without an effective state organization to sponsor it. The formation of such organization is being constantly furthered by N.S.P.E. A reference to the new societies admitted to the National Society during the past year bears witness to this.

While organization continues, the necessity for improving existing acts is becoming increasingly evident. While this must be accomplished in each state individually, the desirability of collaborative effort is too obvious to need elaboration. The ultimate objective is a law that will require the most rigid standards of qualification so expressed as to provide to all intents and purposes a national Act. True each state must act as a unit but with each state having the same law the question of practice anywhere in the United States will be merely a matter of extending courtesy rights to licensed practitioners regardless of what state the practice takes place in.

As an approach to the establishment of a uniform law, or more accurately the enactment of uniform laws in the several states, the question of a uniform expression of what constitutes professional engineering appears to be the first step. It is also the most difficult hurdle that the writing of a Model Act will encounter. In order that none may misunderstand, it should be noted that the National Society of Professional Engineers, while subscribing to what has been often referred to as the "Model Law", does so only to the extent that the said proposal is the minimum that should be considered suitable for legislation in a state where no law presently exists. The instrument in question is not a model but a minimum law proposal. N.S.P.E. now proposes to draw up a Model Law that is comparable to the best and most restrictive professional acts of the callings of law and medicine.

For years professionally minded engineers have sought language that set forth the mathematics and the physical sciences as the premises upon which engineering is builded, but which did not usurp legitimate fields of endeavor comprehended by the practices of other recognized professions. The accomplishment of this end is an objective that continues to intrigue as well as to baffle engineers. That it can be accomplished is the conviction of this Editor who in order to encourage further effort offers the following for discussion:

"Professional Engineer"—A Professional Engineer shall mean a person qualified, in accordance with the provisions of this act, to engage in the practice of professional engineering as hereinafter defined.

"Engineer and Engineering"—An Engineer shall mean a professional engineer and Engineering shall mean professional engineering.

"Professional Practice" — The practice of professional engineering shall mean engaging, or offering to engage, in the application of mathematics and the physical sciences, including the utilization of the forces and the materials of nature and the measurement and delineation of the earth's surface, to the planning, mapping, designing, constructing, operating or maintaining of structures, machines, apparatus, processes, communities (and) or works and combinations thereof, and shall comprehend consultation, investigation, research, evaluation, supervision, direction and other services or acts involved in such practice.

"Engineer-in-Training" — An Engineer-in-Training shall mean a candidate for licensure as a professional engineer who has successfully passed the precribed examinations in the fundamental engineering subjects and who shall be eligible, upon the completion of the requisite experience in engineering work of a sub-professional type, for the final examination required for the right to practice professional engineering.

A second problem with which the professional engineer has had to contend concerns the skilled mechanic and the technician who term themselves engineers and who point to the dictionary in justification of their use of the term. So far as professional laws are concerned it must be borne in mind that the fundamental basis of licensing or registration is protection of the public. In the final analysis the public interest is concerned with the deed rather than the word and the use of a term is a violation of the intent of a law only when it clearly indicates an intent to render a service upon the part of one who is not qualified by law to do so. Thus it becomes necessary to so phrase the professional engineer's law that no other calling is to be prevented from legitimate endeavor. Here again the Editor suggests the following as a proposal to be reviewed and analyzed:

"Services incident to the construction, operation or maintenance of structures, machines, equipment or works wherein the application of the mathematics and the physical sciences, as described above, is not required, shall not be deemed to be the practice of professional engineering."

"The practice of any legally recognized profession or trade shall not be prevented or affected by this act nor shall the practice of engineering upon the part of officers or employees of the government of the United States, engaged solely in the performance of duties for the said government, be deemed to be within the intent of this act."

It is hoped that the above will serve to stimulate interest and perhaps aid in initiating the formulation of a real Model Law that will at once strengthen the profession and make possible real reciprocity.

SOCIETY DIRECTORS MEET

PFISTER HOTEL MILWAUKEE

MAY 26th — 27th, 1944

CONDENSED REPORT OF PROCEEDINGS PREPARED AND SUBMITTED

By CHARLES W. BURKE, *Director, N.S.P.E.*

The Editor, unable to attend the recent meeting of the Board of Directors of the National Society of Professional Engineers held in Milwaukee on May 26 and 27, solicited the aid of Director Charles W. Burke of New York, who was present. The response, which is published herewith, is gratefully acknowledged in behalf of the American Engineer.

The meeting of the Board of Directors was presided over by President H. E. Nold and there were present fourteen Officers and Directors of the National Society and in addition thereto Mr. E. Larson, Secretary, and a number of guests from the Wisconsin Society. In connection with the voting strength of the various State Societies at this meeting it was noted that all State Societies had one vote except New Jersey with 2, Ohio 5, Pennsylvania 2, Texas 2, New York 4.

President Nold reported that since the last meeting in February he had visited the Georgia State Society and there conducted the induction ceremonies bringing the Georgia Society into the National Society. He reported also his visit to the New York State Society and his visit to the headquarters at Washington, D. C. In addition to these he also visited several of the Chapters in the State of Ohio and reports generally that he finds the interest and enthusiasm for the work of the Society is very good and active. President Nold also advised that he had been talking to a General of the British Army who is an Engineer and from him, he learned that there is a strong possibility that a Society of Professional Engineers may be starting in England.

Secretary Larson made a report, copy of which is attached hereto. In addition to the attached report he verbally advised that it is quite possible that by the end of the year 1944, the National Society will have a membership of approximately 9,500 members. He advised further that it is contemplated that there will be a drive to enroll members at large of which there is a field of prospects totalling 10,000. These Professional Engineers will be contacted by letter. The Secretary further advised that the State of Kansas is getting ready to join the National Society and has already prepared a Constitution which they hope to be able to submit sometime during 1944. He also advised that schedules of salary rates and fees have been prepared and adopted by six State Societies to date.

Treasurer Leo H. Cleary, reported cash in the bank January 1, 1944, $204.31 compared with $55.79 for the year 1943; deposits through April 30, 1944, $20,969.50 compared with $14,253.20 in 1943, or a total of $21,173.81 to April 30, 1944 as compared with $14,308.99 to April 30, 1943. Withdrawals to April 30, 1944 $11,376.69 compared with $9,703.05 for the same period of 1943. Balance on hand May 1, 1944, $9,797.12 as compared with $4,605.94 for 1943.

Chairman W. H. Wheeler of the Budget and Finance Committee reported that the budget as previously adopted and as it now stands requires no changes at the present time.

The Chapter activities Committee made no report but requested through the Secretary that member State Societies report their activities to the Chapter Activities Committee sending 20 to 25 copies of their correspondence on activities to the Committee at the headquarters at Washington, D. C.

President H. E. Nold reporting with respect to committees advised that all committees had been appointed and are now functioning.

Chairman John C. Riedel reporting for the Committee on Fact Finding on Collective Bargaining submitted an interim report which was accepted.

Chairman A. Van Praag reporting for the Committee on Federal Practices affecting the Engineering Profession, submitted an interim report which was accepted and he advised further that his Committee is very active on this matter. His Committee is considering Bill (H.R.) No. 3328 which affects the practice of engineering and since there has developed a controversy as to whether this Bill is good or bad, his Committee was directed by action of the Board of the National Society to prepare a Bill that would be in satisfactory form.

On behalf of the New York State Society, an invitation was extended to the Board of the National Society to hold its annual meeting in New York upon a date to be mutually arranged between the National Society and the New York State Society. This invitation was accepted.

The Secretary presented the names of sixteen applicants for membership at large and after consideration by the Board they were elected to membership.

A communication was read from the publisher of The American Engineer in which it was suggested that a new arrangement be entered into with the publisher under which the publisher would furnish an editor whom he would pay a salary of $5,000 per year with the understanding that the National Society would supply the additional office space and clerical force required for this paid editor. Under this arrangement the publisher would take all revenue from advertising in the magazine and the Society would con-

tinue to pay one dollar per copy for the magazine. The publisher would agree to send a copy to every Professional Engineer once every two months which action he believes would be of assistance to the Society in bringing in new members. The Society would through this arrangement, however, lose control of the magazine and their only advantage would be in the possible increase in membership. This entire matter was referred to a special committee to be appointed by the President to report back to the Board at the September meeting.

A general discussion was entered into with respect to financing of The American Engineer and a suggestion was made that all funds for the magazine be handled through the Treasurer's office upon vouchers approved by the manager of the magazine. In other words, the desire was expressed to transfer the receipt of money and the payment of bills with respect to The American Engineer to the Treasurer instead of having the fund controlled as at present and the bills paid as at present by the magazine manager. The Board also expressed a desire to have the magazine manager make a report of the financial status of the magazine fund at this time.

Standing on Platform: (Back Row)—These are Wisconsin Society Officers and Directors. Left to Right: L. E. Peterson, Wisconsin National Director; Walter A. Peirce, Racine, Wis.; Ernest Szekely, Milwaukee; Hans P. Dahlstrand, Milwaukee; President Nold; Wis. President Morton O. Withey, Madison; Wis. Secretary O. J. Muegge, Madison; William J. Urban, Milwaukee; Edwin W. Seeger, Milwaukee; Wis. Treasurer L. M. Schindler, Appleton, Wis.

Standing on Floor: (Front Row)

L. H. Cleary, D. C.; L. R. Post, N. Y.; C. W. Burice, N. Y.; Alex Van Praag, Ill.; J. E. Wickstrom, Wash.; A. H. Baum, Mo.; J. S. Kennedy, Ohio; Alonzo Jones, N. J.; C. E. Vogelgesang; W. H. Wheeler, Minn.

The Committee on Constitution and By-Laws presented their first draft of a revised Constitution and new set of By-laws which the Board reviewed in great detail. Several legal questions were raised with respect to the Constitution because the National Society of Professional Engineers is an incorporated body, having been incorporated in the State of South Carolina in the year 1934. One of the primary legal questions has to do with whether or not the National Society is functioning under its certificate of incorporation. If the Society must function under this certificate it has a perfect right to have a set of by-laws but question was raised as to whether or not it could in that event have a separate constitution. It was finally decided that counsel would be provided for this committee so as to be sure that all legal technicalities were properly provided for. It is believed that the Committee now has before it the view of the Board of Directors and will proceed with the necessary revisions after consulting with counsel.

A general discussion was entered into with respect to

collective bargaining. This discussion was most interesting and enlightening. Mr. Wickstrom of Washington advised that the Washington Society has filed their schedule of rates with the Labor Relations Board and also a copy of their Constitution and By-Laws and it is informally understood by them that the War Labor Board will grant them the right to represent their own members at any hearing before the War Labor Board. They will not be considered however the bargaining agent for their members. It is the understanding of the Washington Society also that engineers-in-training will also be exempt if the person involved is a member of the Society or if he declares it to be his desire that the Washington State Society of Professional Engineers shall represent him.

We learned also from Engineer Wheeler that the Minnesota State Society will be permitted to represent their Members at hearings before the War Labor Board provided that Society is authorized by letter to represent the Member in question. He advised that such Members will be excluded from the bargaining group if he is performing professional work.

While the report with respect to collective bargaining should not be publicized at this time it is of interest to note that the individual State Societies are making considerable headway in their efforts to be recognized as the representatives of the engineering group.

There were several resolutions presented at this meeting the first of which was the resolution from the New York State Society having to do with the possibility of extending the provisions of the Old Age Security Act to self-employed persons. This resolution became a very controversial subject and a lengthy discussion followed. So as not to make this report too lengthy, a complete transcript of the discussion with respect to this bill will be presented separately as soon as it is available from the office of the National Society in Washington. In brief however, it may be stated that the original resolution was lifted from the table for consideration and after a prolonged debate a substitute motion was made to submit the entire matter to the various State Societies for consideration, study and recommendation. This substitute motion was lost by a vote of 15 to 3.

The second Resolution presented was also from the New York State Society and had to do with Engineers obtaining Commissions with the armed forces of the country. The debate which followed the introduction of this Resolution will be given in more detail by the presentation of the transcript of the minutes of the meeting when they are available from the Washington headquarters. In brief it may be stated that the Resolutions Committee to whom all Resolutions were referred before presentation on the floor, recommended that this Resolution be filed with no action taken. This motion was carried by a vote of 14 to 6.

The State of Washington presented a Resolution dealing with uniform registration laws for Professional Engineers and Surveyors throughout the United States. This is in accordance with the views of the Society and was passed by a unanimous vote.

Another Resolution presented by the State of Washington had to do with engineers in charge of public works advocating that they must have engineering licenses and requesting that the matter be referred to the various member State Societies. This Resolution was passed.

The State of Minnesota presented a Resolution recommending the use of a uniform title for Professional Engineers recommending that the following title be used after or in connection with the name of the Engineer "Professional Engineer (Civil) or (Electrical)" etc. This Resolution was amended to strike out the sub-title and as amended it was approved so that the Resolution as passed provided for the use of the title Professional Engineer.

The State of Minnesota presented a Resolution having to do with short courses in colleges and requesting that where short courses are given that no engineering degree or diploma be given to such students. It was suggested that they might be called Technicians but not Engineers. This Resolution called for the appointment of a Committee to study the matter and confer with the colleges involved. The Resolution was passed.

The State of Minnesota also presented a Resolution having to do with the so-called Kilgore Bill calling upon the National Society to watch this Bill and keep the Member Societies informed as to what is transpiring with respect to it. The National Society is at present engaged in following this Bill very closely and therefore no action was necessary.

The State of Minnesota presented another Resolution having to do with the Wages and Hours Law in which it is declared that the legal and medical professions are exempt but that engineering is not exempt. This Resolution required that the National Society take whatever action they can to have the engineering profession placed on the same basis as the legal and medical professions. This Resolution was passed.

The Minnesota Society presented a Resolution requesting the appointment of a committee to study and advise if the National Society of Professional Engineers should support the action of the Building Officials of America with respect to the revision of building codes. It was pointed out that this Resolution has to do with the method of revising the codes, which methods now are too cumbersome and take too long for accomplishment. The Board felt that this is more of a local matter and is not one that should be handled by the National Society. The Resolution was disapproved by a vote of 11 to 7.

The Texas Society presented a Resolution in two parts, the first recommending to the Board of Directors of the National Society that it petition Congress to curtail the unwarranted encroachment on the fields of endeavor and livelihood of private business of which the Professional Engineers form a part and to request Congress that (when not contrary to the interest of public welfare), a requirement be inserted in all legislation appropriating funds for public works, that the plans, specifications and supervision of construction shall be handled to the fullest extent consistent with proper exercise of governmental functions by qualified Professional Engineers engaged in private practice. This Resolution was referred to the Committee on Federal Practice affecting Professional Engineers.

(*Continued on Page* 26)

WHITHER ENGINEERING EDUCATION

A CONSIDERATION OF ITS FORMS AND AIMS WITH A VIEW TO FUTURE TRAINING FOR PROFESSIONAL ENGINEERS

SOME PERSONAL REFLECTIONS

BY THE EDITOR OF THE AMERICAN ENGINEER

(*From The Journal Of Engineering Education*)

The material herewith presented is an address delivered at the Middle Atlantic Section meeting of the Society for the Promotion of Engineering Education and published in the April number of The Journal of Engineering Education.

In approaching a discussion which permits differences of opinion, candor and discretion combine to suggest the wisdom of prefacing any discourse with a statement to the effect that what is set forth is intended as an expression of personal belief or conviction submitted purely as one man's opinion. Such is the following presentation which contemplates the role of education and the responsibility of the engineering educator in preparing the Engineer of tomorrow for public service. In order to develop this theme some thoughts, relevant to education in general as fundamental to the scholastic training of engineers, are in the speaker's opinion warranted.

Nineteen centuries ago, according to tradition and sacred history, there occurred near Rome an incident which has come down through the years to be beautifully recounted and enshrined in the annals of literature by Sienkewiecz, the Polish author. A challenge, in the form of an inquiry, has served to immortalize the incident, "Quo Vadis—Whither Goest Thou." One could, today, in all propriety issue a similar challenge concerning human society. Quo vadit illa—whither is it tending and what is its goal? Are its multitudinous endeavors conducive to a higher civilization or does the very multiplicity of its elements presage chaos? Can man force a decision or is the denouement beyond his ken and power?

It is perhaps redundant to suggest that society today is a highly mechanized, interrelated, gregarious collection of human beings. That it is the best possible form of existence no one contends.

Man's progress in knowledge of the physical universe and in the resultant material developments has not been accompanied by pronounced moral or ethical advances. Unfortunately neither the realm of spiritual understanding nor the capacity to inherit wisdom has been appreciably expanded since the advent of the Christian era. Let him who questions this reflect that concerning, the whence and why of man's existence, the when and where of his departure, the essence and nature of his soul, the philosophy of life, or the regulation and control of his passions—he is no farther advanced nor better informed than were the great thinkers of 2000 years ago. The intangibles of life are as elusive as ever. Men still preach and promise millenniums unmindful as ever of their inability to unify subjective and objective nature. Perhaps the greatest need of mankind is the light to appreciate that while civilization has changed human nature has not — at least not to an appreciable degree.

Submitting that the civilization of the moment springs primarily from the application of science to the aspirations of men, the engineer as the instrumentality of such civilization looms as the least dispensable servant of the present material society. Acceptance of this role implies responsibility and qualification adequate to improve and ameliorate those conditions which give rise to human misery.

The process of preparation for a role is primarily that termed education. The results of such preparation depend largely upon the validity of the process. What of the aims, accomplishments and techniques of education as generally manifest? To what extent has education fulfilled its role as pedagogue leading the children of successive generations to the school, or arena, of life? Is there justification for the contentions of its militant proponents who, like unto the advocates of every social order, make of it the panacea for all the ills that beset society? Not even religion promises with so much assurance. Is it not true that formal or scholastic education must accept at least a measure of responsibility for current offenses against peace, justice and morality? How otherwise can it justify its claim for recognition on the credit side of the ledger of human society?

The subject of post war education is presently running the gamut of public and private discussion and debate. In every proposal concerning the kind of community, nation and world that will, or should, prevail after the close of hostilities, there is included the item of education as a sine qua non of the social justice and economic equality promised for tomorrow, generally with but little regard for the lessons of history.

After traveling several thousand years with education constantly advancing and the scope and horror of war continually expanding, society might well inquire, without being too facetious, what is the relationship, if any, between strife and education? In the light of experience, can it be justly contended:

1. That war is inevitable and that education has no influence upon it;
2. That education begets war;
3. That education can prevent or alleviate war.

If one accepts either of the first two opinions, the third

is automatically excluded. If on the other hand, one postulates the last belief, then that which parades as education is misnamed. Without benefit of this somewhat specious reasoning one can none the less contend that—if we wish to hold to the belief that education can be a factor incident to the promotion of tranquility and forebearance, a review of its present forms and methods should be undertaken ere embarking on the mission of assuring peace and plenty to a troubled world.

An appraisal of education is not alone a desideratum but a challenge to society in general and to the educator in particular. What is education? What are its functions? What are its limitations? Is it a pancea for the ills, social and economic, that plague the body politic; shall it accept empiricism as the sole basis of truth or shall it recognize the a-priori principles and methods of transcendentalism; should it stress the use of deductive or inductive processes or should it combine them in its pursuit of knowledge; should it bar revelation from the realm of its jurisdiction; is pragmatism a justifiable basis for individual or mass conduct; can it accept, for example, that philosophy, as etymologically defined, is love of wisdom, or must it follow the example of Herbert Spencer and expend two thousand words in the form of a dissertation that confuses rather than defines philosophy. Do studies in the so-called humanities develop true culture more readily than similar efforts in the field of science? Has not the term science been so prostituted as to practically nullify its significance in the realm of knowledge? Can education expect to comprehend and explain human nature in the manner and to the extent that it does physical nature? Should not education aim first to make men good rather than fit? These are but a few of the fundamental propositions that call for the reflection and decision of him who, seeking to demonstrate the effectiveness of education, should first establish the same upon a more enduring basis before attempting further expansion. Perhaps the answers in many, if not most, instances will prove to be no more conclusive than, if as wise as, the statement of St. Augustin—"Who knew, in his own mind, what time was; but knew not when asked to define or explain." In any event, the responsibility that accompanies education as a process justifies a thorough review of its present precepts and forms regardless of the conclusions that might be forthcoming.

In the light of the opinions offered and the questions posed, the speaker would submit several concrete suggestions with which to justify his Socratic attitude toward education as a process. These include:

1. Education is a means toward, and neither the end nor the essence of, human enlightenment; nor should the form be substituted or mistaken for the substance of education.

2. More and more scholastic training is not per se the remedy for unsatisfactory social conditions. If the medicine previously administered has proven unequal to the occasion, it is a change of prescription, rather than increased dosages of the ineffective potion that should be considered. A re-orientation of formal education, with emphasis on making man good as well as fit is a sine qua non of an enduring society. Order, peace, justice and stability cannot prevail without the general acceptance of unchanging moral values, high ethical standards and the correct application of knowledge.

3. Peace and contentment are not inherent in knowledge or its handmaid education. Let us suppose for a moment that all mankind were possessed of baccalureate degrees. Would society be one whit nearer to an optimum of peace on earth or the elimination of mental pain and sorrow? Would the universal possession of doctorates eliminate differences of opinion? Do professors manifest love, hate, ambition and intolerance to a lesser degree than laborers? Would a state of deans and prexies be a happier one than that of farmers and merchants or even of Kaffirs and Eskimos?

Is there not greater evidence of true philosophy in the social and moral practices of the ancient Chinese and Hindus than is found in most Occidental learning? Indeed, is there not depth in the poetry of the self-trained but great scholar who so aptly said in verse:

> Lo! The poor Indian—whose untutored mind
> Sees God in clouds or hears him in the wind;
> His soul proud science never taught to stray
> Far as the solar walk or milky way;
> Yet simple nature to his hope has given,
> Behind the cloud topped hill an humbler heaven.

4. The true purpose of education is not the achievement of man's independence but, rather a fuller appreciation, of his dependence upon the source from which emanates the universal laws and proscriptions which circumscribe his attainments and restrict his independence to moral controls and the common welfare of the society of which he is a member.

5. The promiscuous use of the term science has well nigh destroyed its connotation. Since Herbert Spencer, and it is from such sources that the abuse of the term finds scholastic justification, defined science as simply a higher development of common knowledge, the propounders and professors of well nigh every ology and ism have sought, first respectability and then, approval for their thories by attempting to clothe them in the garb of immutability. This indiscriminate use of the term is, in the opinion of the speaker, one of the most baneful influences of the times. Immature minds do not distinguish between the validity of objective physical science and subjective theories. To them both are equally infallible once they are presented as science. The establishment of an Academy of Science, composed of eminent scientists, engineers, doctors and scholars, and cloaked with the authority to restrict the use and prevent the misuse and exploitation of the term, would be a real forward step in education and in the protection of society.

6. The term academic freedom has become a by word that oft times serves strange and questionable causes and frequently imputes unwarranted martyrdom to certain persons. No one questions the civil right to individual opinions and convictions and the right to express the same, except where actually dangerous to the rights of others. However the right to use the class room provided

by public funds, especially where youth is concerned, for unrestrained dissemination of personal doctrines and ideas contrary to public standards of truth and morality and provocative of crime or disloyalty, is no more justified than the right of a doctor to engage in abortive or criminal practice. If academic freedom is to be circumscribed only by personal opinion, why not extend complete professional freedom to doctors, engineers, chemists and others by permitting them unrestrained use of individual judgment in matters of human life and property entrusted to their care. Abuse of right and privilege, whether in education, medicine, engineering or any other calling, is unwarranted and the limitations of academic freedom should be recognized as inseparable from its existence.

So much for the process called education. Whether justly or otherwise, a substantial part of mankind believes that it can develop a new society from which will flow the blessings of social justice. Such is indeed a consummation devoutly to be wished. In any event the concepts and methods incident to its practice are the concern of all men and merit their attention. Educators, including those in specialized and professional fields have an additional responsibility. This is particularly true in the case of the engineering educator, for upon him devolves a dual role. He must teach men the subject matter of engineering. He must also teach them how to use and not misuse science. Preservation and promotion, not the destruction, of human society must be the motive behind the practice of the professional engineer.

Again one is prompted to inquire, this time, concerning engineering education. Leaving its relation to engineering practice for later consideration one may opportunely ask: What of its processes and trends generally? What subject matter should it comprehend and how shall the same be ascertained? To what extent can scholastic training furnish the necessary preparation and how must this be supplemented by individual character, aptitude, endeavor and experience? How well is engineering education today fulfilling its role of mentor to the engineer of tomorrow?

Much has been written and more spoken on these topics during recent years. Various schools of thought have given voice to their views. Hence it is probable that more engineering educators have definite and justifiable opinions concerning engineering training than they have on the more general subject of education itself. Yet as teachers, it is obvious that they, too, apply the techniques and methodology of basic education.

For example, during the past century form has become almost a fetish in the development of institutional instruction and engineering schools as a whole conform to practices that frequently tend to make of the individual an omnium-gatherum rather than a thinker. Fortunately the very nature of scientific application calls for demonstration, hence the training received by the engineer compels the reflection incident to proof. Thus while engineering training may have escaped some of the defects inherent in present educational form, it is perhaps due to accident rather than design that it does so.

In keeping with general practice, the tendency in engineering education has been toward division and specialization. This, together with the formation of societies restricted to specialized practitioners, has confused the public and given rise to the common opinion that engineering is a heterogeneous combination of callings rather than a single profession with specialties comparable to those of law and medicine. Furthermore, this process has encouraged and justified the indiscriminate use of the term engineer through the application of dozens of descriptive qualifying words such as custodian, exterminating, human, etc. The practicing engineer and the public, often in the face of actual opposition from certain technical societies and engineering schools, have finally, through the medium of professional practice acts and professional societies, halted this trend and their efforts are well on the way toward establishing the unity of the profession. Engineering schools should collaborate in establishing basic unity for the calling of engineering.

There are some wide differences of opinion concerning the subject matter that should be included in engineering curricula. There are also differences concerning the manner in which the same should be taught. Should engineering courses be uniform? Should they place greater emphasis on the humanities and if so should this be accomplished by expanding courses or curtailing technical subject matter? Should such studies be pursued prior to, coincidently with, or subsequent to, engineering subject matter? The answers to such questions can only be ascertained from experience and such experience must come from public and professional sources. Here again, these sources have provided the means for ascertaining the range and amount of education that should be provided. The method should remain the province of the school. In the future the Registration Boards in the several states will determine whether or not the candidate for admission to the practice of engineering possesses the essential character and knowledge to justify entrusting him with the prerogatives of a professional man. It remains for the practicing engineer, through public agencies, to determine and maintain the required standards. It remains for engineering schools to establish such curricula as will adequately prepare the student to meet public standards. Those who fail to provide the essential education will soon fall by the wayside.

Can schools complete the education of an engineer? One is safe in answering negatively. At best, they afford the shortest and safest road toward the objective of professional practice. They are a means and not the end and no amount of scholastic preparation can supply the character, judgment and experience indispensable to the assumption of major responsibility for life, health and property affected by practice. However, scholastic training can furnish the general basic knowledge, develop the incentive to apply the tools of nature, indicate the accepted processes of thought and inspire the spiritual influences for moral action, all distinguishing features of sound education of whatever sort.

Accepting accomplishment as evidence, and surely there is no better measure, engineering education has to date fulfilled its specific role to an extent unexcelled by any other scholastic endeavor. That role has been the training of engineers as scientific and technical experts. Until recently little thought has been given to preparing the engineer for administrative and political roles. With the increasing dependency of society upon the provisions of applied science the responsibility of the engineer can no longer be restricted to the building of material civilization. He must help to administer the society for which he is so largely responsible. He must do so: — to progress the march of mankind by providing an understanding leadership; to prevent the misuse and exploitation of his contributions to society; and last, but perhaps not least, to protect himself against intolerant ignorance that would condemn him for his contributions to human welfare and relegate him to a subordinate role in the affairs of government and industry. How may his proper role be assured? The answer is undoubtedly to be found in the possession of that additional training, knowledge and tehcnique that will enable him to compete for leadership on equal terms with those engaged in other fields than engineering. It is for this purpose that practicing engineers are so insistent that more adequate training in the so called humanities be required of engineers for admission to professional status and not because of a belief that there are any inherent, superior moral or ethical attributes attached to the study of the said humanities as compared with the sciences. The ethical standards of the engineer are today more rigorously adhered to than those of legal and medical practitioners. But without the tools and skill to apply them to the conduct of social units, they remain but suppressed desires, to use a rather discredited but easily appreciated philosophy of action.

Today the practice of engineering is carried on primarily under two sponsorships: viz, public service and private industry. As time marches on the engineers in these services will find their efforts directed more and more toward similar, if not identical, ends. The scope of governmental activity and influence is constantly expanding. The regulation of industry by government is continually increasing. As a consequence, the objectives may one day be common. The practices and methods of achieving ends will become more and more alike. Eventually, if such trends continue, the two should merge and to all intents and purposes the socialized state will have arrived, though not by the method predicted by Karl Marx. While reason might lead to this conclusion, the speaker trusts that the idiosyncrasies of the individual will prove sufficient to prevent the completely socialized state, whether by evolution or revolution. Regardless of the ultimate, or, perhaps more accurately, the penultimate, antepenultimate or even a dozen anterior states, the practice of the engineer is going to deal more and more with matters social; and under the general category of social must be included legal, political and economic considerations.

So far as the engineer in public service is concerned, he functions through governmental agencies. His practice in all instances demands, in addition to engineering knowledge, a thorough understanding of administrative law, as well as familiarity with political, social and economic influences. Without such the engineer in public service cannot assume any degree of responsiblity, effect any vital work or give decent expression to his imagination. To this extent must the engineer, who contemplates a career in public service, add to his general training. To a lesser extent, the same is true of the engineer in certain private industries especially those often referred to as public utilities. Because of the fact that the services commonly provided — and all too often taken for granted — for urban existence are in general furnished by municipalities and quasi-public corporations, the practice of what might be termed Municipal Engineering has become a definite and increasingly large and important field that serves to illustrate the career of the engineer in public service generally. The plan, design, construction, operation and maintenance of a city are basically physical considerations which call for engineering of every type. The proper coordination and interrelation of the physical with the social and economic threads of the municipal cloth require application of the knowledge and techniques unique to the practices of the lawyer, doctor, sociologist, economist, real estate expert, business man and others, as well as those of the engineer.

It is perhaps pertinent to touch here on a trend which stresses the need for emphasis on Municipal Engineering. The present war has demonstrated that physical rather than political units should be regarded as entities for defense purposes. This is equally true of peace time administration. The adequate planning of municipalities will in the future probably be on a regional basis. The controls will be the physical limitations of the area rather than arbitrary political lines. Water supply and drainage sheds, sanitation, power, communications, transportation, traffic and other factors of a physical nature will in general determine future political boundaries. This will necessitate a definite and controlling engineering influence in the administration of government.

In addition to professional and civic arguments, there is an economic justification for presenting to students of engineering the scope and the opportunities of Municipal practice as an alternative career to structural, hydraulic, mechanical, electrical or chemical engineering. It is the speaker's opinion that the need for the techniques of engineering planning will shortly be so great as to provide an unusually large field for the engineer who prepares himself for municipal work. European cities will have to be rebuilt and, from present indications, comprehensive planning is already under consideration. Several generations will be required to rebuild England alone. New techniques applied to housing, traffic problems and other prevailing unsatisfactory conditions, including unstable and insupportable land values, will likewise make imperative countless undertakings throughout this country.

The engineer who contemplates a career in public service, would do well to remember that nearly every branch of engineering is involved and that his practice

may cover one or several specializations. His horizon of knowledge, though less intensified than that of other specialists, must be extended to include the basic planning, designing, execution and operation for public utilities and private enterprise as well as for governmental agencies. All these activities must be planned and regulated so as to envision a balanced production, distribution, employment and economy for the municipality as a whole. This is of course an objective little likely of more than partial realization. The task of the Municipal Engineer is to coordinate as well as initiate plans and proposals for public and private endeavor. Only the person possessed of a working knowledge of the subjects involved can intelligently attack the problem of interweaving the factors of Municipal Existence. Such also is the case for the engineer in public service generally, and, to some extent for him in industry.

This leads once more to the question of engineering training and the special form or forms that it must take in the light of its relation to practice. As previously suggested there is practically a unanimity of opinion among practising engineers that more adequate training in social, philosophic, literary, aesthetic, economic and legal subjects should be required for admission to professional status. There is also recognition of the fact that there are many essential technical services incident to engineering practice, which, while calling for the application of certain engineering principles and techniques, do not require the additional training essential to those who seek professional recognition. On the other hand there is a growing field of specialized practice which calls for research and experience supplemental to that recognized as minimum for entrance to the profession. How best to effect, within the framework of formal education, a plan comprehensive enough to meet these several requirements is a problem that challenges engineers, engineering educators and others interested in the future of the profession.

Many engineers believe further that a codification of engineering classifications is needed and that a syllabus containing fewer and more logical subdivisions of what is fundamentally one profession should be developed for scholastic purposes. The term Civil Engineer originally covered all the existent branches of the profession and was used to distinguish between civil and military pursuits. A step towards the accomplishment of the ends referred to might be found in the following educational program: A basic course — consisting of a thorough training in mathematics, the pure and applied sciences, fundamentals of engineering theory applicable to all branches of engineering and selected studies in the humanities — leading to the degree of Bachelor of Engineering. This would enable the graduate of such basic course to seek immediate employment in technical and other fields of activity where educational, but not professional, backgrounds are essential. For those seeking professional status, additional scholastic study covering the specific application of science and engineering principles to various forms and types of engineering, together with further investigation of the humanities, including special reference to administrative law and to codes of ethics and practice involved in the work of a professional practitioner, or the equivalent experience and knowledge, might be a minimum requirement for the designation of Civil or Professional Engineer to be acquired through state examination and registration. This would approximate an internship or apprenticeship of perhaps two years. Further professional post graduate study or experience in selected engineering work could then be required for specialist designations such as mechanical, electrical, structural, hydraulic, chemical, mining, military and municipal engineers with perhaps a doctorate as academic or institutional award equivalent to a Doctor of Public Health or of Internal Medicine.

You will note that form has been minimized in this proposal. Time, credits and other present scholastic methods of measuring education should be subordinated to accomplishment. Ability, talent and determination are not equal in all men. Recent army investigations have in many cases been most convincing in this respect. It is the end for which education purports to train, not the processes of education, that should be the criterion of knowledge or attainment.

To conclude one might summarize by suggesting that while education is not and can never be a cure for all the social ills born of the emotions and imperfections of human beings, it can, by reorientation and emphasis upon morality, make man more conscious of his dependent state in this world and aid materially in alleviating human misery.

The progress of civilization has been confined almost exclusively to material advances. Such advances have not been accompanied by, nor provocative of, spiritual progress. As the principal cause of modern civilization, the engineer has a heavy obligation to society. His participation in its affairs is indispensable to its maintenance and his leadership to its future progress. All professions, especially engineering, are aproaching what might be referred to as a socialized pattern. Ability to function within such framework calls for planned education.

Engineering education, to date, has done an excellent job, but within a scope too narrow for the role the engineer of tomorrow will be called upon to assume. Failure to measure up to this role will reduce engineering to the status of a skilled craftsmanship, subordinated to the policies and dictates of others better equipped for adminstrative authority and leadership in a society composed of fallible human beings. To meet the impending exigencies, engineering education should be revamped in such manner as to train men progressively for (a) technical performance; (b) administrative, as well as engineering, responsibility; (c) special scientific and research accomplishment directed toward constant advances in the several fields of engineering, as well as qualification for the role of technical and professional man. This does not for a moment *preclude* the development or manifestation of talent or ability by other means, nor does it *insure* the objectives noted in individual instances. It does purport a definite means toward an objective.

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WISCONSIN RECEIVES CHARTER

INDUCTION CEREMONY MARKS TENTH ANNIVERSARY OF NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

PRESENT RATE OF GROWTH INDICATES THAT SECOND DECADE ALREADY BEGUN WILL WITNESS THE ACHIEVEMENT OF ENGINEERING UNITY Through The Professional Society

By LAWRENCE E. PETERSON

Although a portion of Director Peterson's commentary duplicates the report of Director Burke, which appears elsewhere in this issue, both are so well presented that they are published in full. The American Engineer expresses its sincere appreciation to Lawrence Peterson for his courteous response to a request for news and photographs.

The Board of Directors of the National Society of Professional Engineers met in Milwaukee at the famous Pfister Hotel on May 26th and 27th. This was also the occasion of the ceremonial induction of the newly organized Wisconsin Society of Professional Engineers into the National Society of Professional Engineers.

The affiliation of the Wisconsin Society with the National Society at this time carries with it a peculiar significance since this induction ceremony took place the day after the tenth anniversary of the organizational meeting of N.S.P.E. on May 25, 1934 and it marked the inauguration of N.S.P.E. as the representative of more professional engineer members than any other existent engineering society. Thus, on the first day of the second decade of its life a milestone was reached which may well presage its future effect on the activities of engineers in their desire to take their proper place as a star of highest magnitude in the scientific firmament.

Eleven member societies were represented by Directors who had traveled from the Atlantic and Pacific coasts to be in attendance. Also present were the Presidents of four of the mid-west member state societies.

President Nold in making his report to the Board told of his attendance early in March at the induction ceremony of the Georgia Society of Professional Engineers into the N.S.P.E. and of his attendance early in May at the annual meeting of the New York State Society of Professional Engineers as well as his addressing the D. C. Society of Professional Engineers in Washington, D. C. later in May. He also made several unofficial visits to Chapter organizations in various parts of Ohio. In discussing these experiences he suggested to the Board the desirability of the National President's meeting with member state societies because of the desire on the part of local groups to gain a better understanding of the basic and fundamental principles underlying the National Society's organization. He expressed great satisfaction over the continuous development in the growing membership of the Society of a sense of high respect which was being accorded the office of President of N.S.P.E.

Secretary Larson reported that the active membership is now in excess of 8200 and that if growth of the organization continues at the same rate that characterized its increase in numbers during the first half of this year the membership at the end of 1944 should number over 9000. He stated that although growth in membership of member state societies was vital and most encouraging there has been a continued increase in the number of members-at-large, 16 applications for these being approved by the Board at this meeting.

Treasurer Cleary reported that there had been a 50% increase in total receipts for the first four months of this year as compared to the first four months of last year. His report indicated clearly that the treasury of the Society was becoming increasingly healthy and sound.

The meeting of the National Society Directors was fea- on Revision of Constitution of which Charles Burke of tured by a display of the fine work of the special committee New York is chairman. Chairman Burke presented in detail the first draft of the revision of the Constitution and By-Laws and each section was discussed very frankly This had the effect of instructing the committee for its preparation of further drafts, and the opinions expressed will enable it to incorporate provisions that are satisfactory to the geographically diversified membership. Considerable discussion developed over the present constitutional provision which permits a minimum of ten engineers to form a member state society. It was felt that this

President Nold Presenting Charter to Wisconsin President Withey

number should be raised somewhat so as to encourage the development of full-sized state societies such as the new Wisconsin Society so that the engineers in any state can be more properly represented than is possible by a handful of engineers without state-wide recognition. The committee was instructed to study this point from the standpoint of ascertaining whether or not a minimum percentage of the registered engineers of any state might determine the lower membership limit for eligibility into the National Society. The subjects of officers, directors, committees, conventions, dues, and so forth were discussed exhaustively for probably four or five hours. President Nold gave a thought provoking talk on the future work of the Society and the probable cost of that work in the hope that the Board and through their Directors the membership would appreciate the need for very careful study of the subject of membership dues. He discussed the opportunities for service to the professional engineer which would be afforded the Society when its membership became 10,000 and over and pointed out that preparation for such service would require consideration of membership dues higher than $4.00 or even $6.00.

Considerable time was given to a discussion of the desirability of the extension of the Social Security Act to self-employed persons insofar as such provisions would apply to private practising engineers. The Board also reviewed the matter of the relation between the professional

Induction ceremony and dinner meeting in Fern Room, Pfister Hotel, Milwaukee National Society of Professional Engineers

engineer and collective bargaining activities and again reaffirmed its position that no group of professional engineers could become a collective bargaining agency since such organization is not compatible with professional procedure.

On Friday evening the banquet and the ceremony of presenting the Wisconsin Society of Professional Engineers with the state membership charter of the National Society of Professional Engineers took place at the Pfister Hotel. This affair was attended by engineers from all over the State of Wisconsin as well as the National Society's Board members and Presidents of several other state member societies. President Nold, in his charge to the newly inducted members, called particular attention to the fact that a man may be an effective and efficient engineer and yet not be a professional man. He said that such a man may be only a highly efficient mental technical machine and he emphasized the fact that professionalism is much more than this. He referred to a recent speech by Dr. W. E. Wickendon entitled, "The Second Mile" which calls attention to the thought that "the best fun of life and most of its durable satisfaction lies in this 'Second Mile' and it is only here that a calling can attain the dignity and distinction of a profession. President Nold then said that "we are facing a rapidly developing consciousness by society that the engineer exists, but society has little evidence

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Submitted as:

ITEMS OF GENERAL INTEREST

ROBERT HALL CRAIG

National Director From Pennsylvania Dies In Philadelphia

The July issue was already on the press when word arrived of the passing of Robert Hall Craig, one of the leaders in the Professional Society Movement. Lack of time prevents adequate tribute to a former editor of the American Engineer and present National Director from Pennsylvania. The following from the Harrisburg Telegraph is offered pending the arrival of further details:

"Robert Hall Craig, 51, River road, consulting engineer prominent in civic affairs for many years, died Sunday at the University Hospital, Philadelphia, where he had been a patient for six weeks.

A past president of the Engineers Society of Pennsylvania, he represented the organization on the board of trustees of Penn State when the college asked the Society for an outstanding member to serve on the board. He was re-elected to this position annually. He also helped organize the Professional Engineers Society in Harrisburg and served as an officer for the group. He served as editor of the "American Engineer", official magazine of the National Society of Professional Engineers and as editor of the "Pennsylvania Engineer".

He was a member of the State Civil Service Commission, Robert Burns Lodge No. 464 of Masons, the Harrisburg Consistory and Zembo Temple Shrine. He was a past president of the Penn State Alumni Association, interested in Sigma Alpha Epsilon, which he joined in College; and for twenty years was a member of the Harrisburg Rotary Club.

A native of Middletown, he early gained a reputation as an athlete in school and college and later played professional baseball before giving his entire time to the study of engineering. Rated as one of the leaders in his field in the east, Mr. Craig, was especially consulted by water companies in this area.

He was vice-president and an active member of the Flood Control Council for the Susquehanna Drainage Area, owned interests in several up-State water companies, held official positions with additional companies and served as consultant with numerous water companies in other states."

National Council of State Boards

Items From Its Registration Bulletin

Interstate Registration

By D. B. Steinman, Past President N.S.P.E.

The animated discussion on the report of the Committee on Interstate Registration, at the 1943 Annual Meeting of the National Council at Indianapolis, makes interesting reading. It also, unconsciously, justifies the purpose of the report.

The comments quoted in the report were *not* anonymous; all of the returned questionnaires were signed. To disclose the identities of those who responded frankly, at the Council's invitation, would be a violation of confidence. Their comments were *invited*, not volunteered. As stated in the report, those who responded may fairly be described as obviously qualified engineers—nationally known men of long established standing and practice. Our sole purpose may be simply stated in the familiar words of Bobbie Burns:

"O wad some Pow'r the giftie gie us
To see oursels as others see us!"

I have devoted many years of my life to the cause of Engineers' Registration. I am now fighting to eliminate some of the evils and weaknesses of Registration. Our committee has been given a job toward that end. We can accomplish nothing as long as the individual State Boards (including my own) remain complacent, self-satisfied, and superior,—resenting criticism instead of welcoming it.

What I am going to say here may hurt, but it needs to be said and there is no one else to say it.

Too many of our State Boards have become infected with the virus of bureaucracy. Power and authority have gone to their heads, leading to a delusion of perfection and infallibility, and an attitude of superiority and dominance over those whom they are supposed to serve. It is the same disease that has become rampant in this land of ours. It is manifested by many office-holders and other public servants, from the bureaucrats in Washington down to the uniformed ushers in large movie houses.

Applicants for registration are entitled to courteous treatment. Applicants for interstate registration, even more so, are entitled to every possible courtesy and consideration. They have already established their qualifications in one or more states. They are fellow Professional Engineers. Their eminence, as a rule, is attested by their interstate practice. In many cases, they may possess even higher qualifications and attainments than the Board member passing on their applications. Delay, discourtesy, needless requirements, arrogance, and vindictiveness will undo the work of years and will bring Registration into disfavor and disrepute. The foregoing enumeration may sound harsh, but I know whereof I speak.

Above all, the one thing that can do the greatest damage to the cause of Engineers' Registration by undermining faith in its integrity is any impression or suspicion that it is being used for local advantage to keep qualified engineers out of practice rights in any state. Any such impression *must* be avoided at any cost.

The excuse is given that the interstate applicant must meet the same requirements as the local residents. This excuse is an evasion of the issue. It loses sight of the fact that the interstate applicant has already established his qualifications. It also loses sight of the fact that the requirement of a personal appearance or a written examination is a greater hardship for the interstate applicant, as he is generally an older and a busier man residing in a distant state. It is easy to find, in the law and the rules, excuses for imposing maximum obstacles and hurdles; instead the Board should seek and avail itself of every possible leeway in the law to *minimize* the difficulty of interstate registration. The nuisance element of multiple registration must be reduced to a minimum. If the law makes nuisance requirements mandatory, the Board members should lend their efforts to have their law amended.

The original designation "Reciprocal Registration" led to pernicious anomalies and abuses. An eminent engineer would be barred from accepting an engagement in some other state merely because his home state had not entered into a reciprocity agreement. This was not justice; it was cheap retaliation.

To avoid these objectionable connotations of "reciprocity", the designation "Interstate Registration" was substituted. It is intended to suggest the requirements of interstate practice. Some object because they fear that this designation would be a stepping stone to some kind of National or Federal Registration, which might deprive State Boards of some of their power and prerogatives. Perfection of a National Registration, either supplementing or superseding State Registration, would be an ideal consummation for our Profession. For the individual State Boards, service should be the objective, rather than power, and no jealous clinging to prerogatives should stand in the way of the ultimate good of the Profession.

Annual Meeting

The 24th Annual meeting of the National Council of State Boards of Engineering Examiners will be held at Lexington, Kentucky, in Hotel Lafayette, Monday and Tuesday, October 30 and 31, 1944. State Boards and Engineering organizations should designate their delegates and representatives as early as practicable and the Secretary of the National Council should be furnished their names and addresses. Transportation and hotel reservations should be made at an early date.

On the first morning of the Annual Meeting all delegates will first assemble in one group and then adjourn to the various committee meetings. Everyone not a member of some committee will be expected to attend the meeting of the committee in which he is most interested. After lunch on the first day of the Annual Meeting the business session will start and continue through the afternoon of the second day. The Annual Dinner will be on the evening of the first day of the Annual Meeting. The meeting is to me again streamlined and limited to two days so it is expected that the reports and discussions will be concise and of special value this year.

N.S.P.E. Nominating Committee

Will Receive Recommendations

The following memorandum from Secretary Larson is of interest to all state societies and members:

Members

To Messrs.
Alex Van Praag, Chairman
447 Standard Office Building, Decatur, Illinois
R. B. Cruise
P.O. Box 1422, Beaumont, Texas
Leland R. Post
c/o N. Y. Telephone Company, Binghamton, N. Y.
Colonel Walter L. Simpson
2025 Eye Street, Washington, D. C.
Joseph E. Wickstrom
761 Empire Building, Seattle, Washington

Gentlemen

Pursuant to your election at the Ninth Annual Meeting December 11, 1943 as the Committee which will make the nominations of candidates for officers to serve during the year 1945, we call your attention to certain parts of the National Constitution now in force.

Nominations must be made to fill the office of the President, four Vice-Presidents and a Treasurer, in accordance with Article V. All nominations made by the Committee must be ratified by the State Executive Board of the State Society of which the nominee is a member (see Article VII). Also, please note that additional nominations may be made by petition of the membership.

For your information we quote Part 16 from the minutes of the Meeting of the Board of Directors held December 12, 1942:

"16. Consideration of establishing boundaries of your areas in accordance with Article V. of N.S.P.E. Constitution.

"Motion by Treasurer Simpson seconded by Director C. W. Burke was carried that to satisfy the requirements of Article V of N.S.P.E. Constitution the following Zones be established:

"Northeastern Zone to cover—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia Virginia and West Virginia.

"Southern Zone to cover—North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, Oklahoma, Texas and Puerto Rico.

"Central Zone to cover—Ohio, Kentucky, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, South Dakota and North Dakota.

"Western Zone to cover—Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, Nevada, California, Alaska and Hawaii."

The following time schedule must be adhered to in order to satisfy all of the requirements set forth:

Aug. 1. Ratification of nominees by respective member State Societies must be in hands of Nominating Committee.

Aug. 10. Dead line for filing Nominating Committee report with Editor of THE AMERICAN ENGINEER and National Headquarters.

Aug. 31. AMERICAN ENGINEER mailing date.

Oct. 14. Printing of Official Ballot.

Oct. 28. Mailing date for ballots.

Dec. 1. Balloting closes.

Dec. 8. Tellers Committee report to Board of Directors.

The Antiquity of Engineering

From Tri-County News, N. Y.

The following is copied from the bulletin of the Tri-County Chapter

The day is fast approaching when the question of whether engineering is a profession or just a trade will be decided, and unless there is more intensive interest displayed by many members of the profession, and unless a greater number of professional engineers display that interest to the extent of becoming identified with an organization whose great objective is to establish public appreciation of the fact that engineering is, and has been, just as much a profession as law or medicine, since history began to be written, then some manoeuvre of a labor organization will, through a Labor Relations Board or a wages and Hours Board, or some other legislative device, fix the status of the engineer as that of a foreman or skilled laborer.

But what, we hear you say, has its antiquity to do with whether engineering is a profession or a trade? Just this: There is no question either in the lay mind or in the mind of our lawmakers as to whether medicine and law are in the category of professions, yet engineering antedates either medicine or law. About 977 years B.C. a very wise man of his time said: "The thing that hath been, it is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun."

About 475 years before that wise man wrote the words in the above quotation, we find that the first recorded history of municipal engineering is related and specifications are given as to the dimensions and layout for forty-eight cities and their suburbs. That was some housing project for those times. (Numbers xxxv, 4 to 14.)

The first biblical reference to the profession of medicine we find about the year 600 B.C., wherein the daughter of the people cries: "is there no physician there?" (Jer. viii, 22.)

The first Scriptural reference to the profession of the law we find about 27 A.D. where it is recorded that "A certain lawyer stood up." (Luke X, 25.)

But we have historical record of Mining engineering antedating either of the above in the year 1520 B.C., wherein we are told "Surely there is a vein for the silver and a place for gold where they mine it." And "Iron is taken out of the earth, and brass is molten out of the stone." Furthermore Hydraulic engineering is related in the words: "He cutteth out rivers among the rocks; and his eye seeth every precious thing. He bindeth the floods from overflowing; and the thing that is hid bringeth he forth to light." (Job XXVIII, 1, 2, 10 and 11.)

The profession of medicine has its Aesculapius of the ancient Greek and Roman days, and its Galen of Pergamus, about 131 A.D. The profession of law has its Solon, one of the seven wise men of Greece, who rearranged the legal relation between debtor and creditor in which the debtor was relieved without injury to

the creditor; (A sort of bankruptcy law), and he established the first "simplified tax return." As archon, he established a code of laws regulating private and public life.

Thus we see that the engineer has for time on time been deprived of the credit due him, for we do not find, until comparatively modern times, any reference to the names of the individuals who "hath these wonders wrought," proving the truth of the words of George F. Swain, of Massachusetts Institute of Technology, saying: "The engineer of the past has too generally been considered a mere builder, and he has not, as a rule, been given the position to which his responsibilities and his achievements legitimately entitle him;" but the engineer of the future should aim to take a position in society and business as a cultivated and highly trained man, on a level with men of any of the other professions.

And so we are again constrained to say to you who are members of the National Society of Professional Engineers and know of a licensed professional engineer who is not a member of the National Society—make it your duty to encourage him to become a member and explain to him how to take the first step by attending a meeting of the Chapter.

Ed: The above is quoted without verification.

Engineers After The War

From The Highway Magazine

The May-June issue of The Highway Magazine contains the following worthwhile commentary. No strictly engineering publication has more effectively outlined post war policies for the profession and the practising engineer.

Engineers and engineering are playing leading roles in fighting this war on the battlefront and the home front. The Army Engineers have done some outstanding jobs in building roads, airfields and other facilities in Canada, Alaska, the Aleutians, North Africa, Italy, Persia, England, Burma and the Southwest Pacific. The Navy's Construction Battalions (Seabees) have made history with their speedy construction in every theatre of war.

Civilian engineers have helped build army camps, naval bases, war plants, airfields, the Alaska Highway, oil pipe lines, railroads, access roads and other transportation facilities. Every branch of engineering has contributed to the war production effort.

True, the public forgets quickly. But the prestige of the engineering profession is firmly established. The engineer can rate with the doctor, the lawyer and the clergyman if he will diligently do several things, such as (1) keep the standards of the profession high by ever stricter registration laws, (2) associate himself with his engineering brethren for the betterment of the profession, (3) identify himself with civic projects, and (4) thoroughly publicize his part in every worthwhile engineering project.

The cost is high. Never before has the engineer had the deserved recognition of his fellow men as he has now. Let him keep it by continual striving.

An Echo

Of The Ohio-New York Contest

Attention—Prexies Graf and Fairman

Little did the participants in the Ohio-New York membership tie contest realize to what distant shores the ripples of the stone cast in the waters of friendly contest might be carried.

The appended speaks for itself.

The Tie

"At one of the M.A.P.E. council meetings, Mr. S. L. Stolte (President) entered the meeting behind a tie that fairly pulled him along. As we recall it, the creation had a vivid blue moiré background on which there was the facsimile of a fried egg sunny side up. It was rich enough to cause comment—if you know what we mean. But the tie had its defenders, those who insisted that the typical tie of the professional engineer was far too drab and nondescript to represent a profession so progressive as engineering. And to illustrate the point as well as the spirit, someone produced the

"Song Of The Tie"

Some may long for the soothing touch
Of lavender, cream or mauve,
But the tie I wear
Must possess the glare
Of a red-hot kitchen stove.
The books I read and the life I lead
Are sensible, sane and mild
I don't wear spats
And I like calm hats
But I want my neckties wild.

Give me a wild tie, brother,
One with a cosmic urge
A tie that will swear
And rip and tear
When it sees my old blue serge.

Now some will say that a gent's cravat
Should only be seen, not heard.
But I want a tie
That will make men cry
And render their vision blurred.
I yearn, I long, for a tie so strong
It will take two men to tie it.
If such there be
Just show it to me
Whatever the price, I'll buy it.

Give me a wild tie, brother
One with a lot of sins
A tie that will blaze
In a hectic gaze
Down where the vest begins.

"With such inspiration, it was decided that the next council meeting should be attended by ties (with their masters) that could lend dignity as well as life to the cause of engineer. *Stolte was presiding, Miss Feucht judging, and who do you think had the winning number? Mr. Al Kircher of Mankato way!*"

RESOLUTIONS

N.S.P.E. Meeting

Milwaukee, May 26-27

Ten resolutions were presented for consideration. Following is a digest of those approved:

(1) Recommendation that each state society adopt a proposal that licensed practioners affix the designation Professional Engineer to stationery and all instruments of work.

(2) Declaration of principle opposing the recognition of proposed post war two year technical courses as satisfactory basic professional training for engineers. Committee to be appointed to combat any attempt to confer engineering status of any sort upon the completion of a two year course in engineering.

(3) Urging all state societies, in response to an invitation, to immediately contact Regional Directors of the Fair Labor Standards Board requesting that Section 5413, paragraph B, of the regulations of the said board be amended by adding in the sixth line thereof, after the word Medicine, the words Professional Engineering.

(4) Requesting all state societies to take appropriate action to strengthen existing license laws and to collaborate in writing a uniform law for introduction in Legislatures throughout the nation.

(5) Urging state societies to place all public works within the scope of license laws.

Note: Copies of all Resolutions will be incorporated in the minutes forwarded to each State Society.

Fragments from

STATE & SOCIETY ACTIVITIES

CALIFORNIA

Work Of Board Reviewed

In the Registered Civil Engineer for May, 1944 Mark M. Falk, Vice President of the State Board of Registration discusses the work and the finances of the Board. An excerpt of interest is entitled "Disciplinary Work."

Disciplinary Work

The board is charged with investigating violations of the law by persons not registered or licensed, which is a criminal offense against the State. Such cases are tried in the local courts. The board, in this type of violation has no jurisdiction; its only duty is to make the investigation and refer it to the local prosecuting officer. It also investigates and tries violation of the Registration Act by any registrant. The making of investigations of all violations and assistance to local prosecutors in the prosecution of infractions of the Act by nonregistrants, has been delegated to the board's investigator, who works directly with the district attorneys and municipal prosecuting officers. The investigator is, however, subject to board supervision and instructions. He represents the board, and in so doing relieves the board of the details of this function. Registrants, civil or structural engineers or surveyors may be brought before the board for trial for violation of any section of the act under which they are registered, or upon any one of six specific violations of Section 6775 of the Civil Engineers Act or the three of Section 8780 of the Land Surveyors Act. In such cases the board acts as the judge and jury. The penalty, if found guilty, may be to

(a) Reprimand, privately or publicly,
(b) Suspend a license for a period not to exceed two years, or to
(c) Revoke the certificate of registration.

Before the board can hear a case of this nature, a complaint against the accused must be filed, setting forth in detail the charges, and it must be sworn to by the complainant.. Twenty-seven cercertificates are deceased. At the close of the first fiscal year of the one month to a maximum of two years; and reprimands have been in the neighborhood of 100. There are no suspensions pending at the present

The number of registered civil engineers is not increasing. New registrants each year just about off-set those lost by expiration of certificates and deceased. At the close of the first fiscal year of the board's operation (June 30, 1930) there were 5,008 certificates outstanding. On June 30, 1940—10 years later, the number of outstanding certificates had dropped to 4,501. On June 30, 1943, there were 4,550 certificates outstanding, but only 4,036 of that number were valid. Today we have 4,675 certificates outstanding, of which 4,371 are valid. The difference between the outstanding and vadid certificates represent those who are not authorized to practice but who may renew their registration during the one-year period of grace provided in the act. During the last fiscal year, more certificates were granted than any previous year except during the "grandfather" period, 1929-30, and the current fiscal year will be ahead of last year.

ILLINOIS

Awaits Court Decision

From the pen of Max Suter comes the following, which The American Engineer acknowledges with appreciation:

"The question of the constitutionality of the Illinois Professional Engineering Act is still in the courts. The Illinois Supreme Court accepted on May 17, the filing of briefs by both parties on the appeal from the Sangamon County Circuit Court which found the law unconstitutional. It is expected that a decision will be rendered by September. Until this decision is delivered, the Department of Registration and Education is enjoined from doing anything in administering this law. Yet if the Supreme Court decides in September that the law is constitutional, then the grandfather clause will have expired on Aug. 1, 1944. In order to give its members a chance to register under this clause, the Illinois Engineering Council had forms printed for application to the Department of Registration and Education. These applications will be kept in cold storage until the Supreme Court makes its decision and will then be accepted under the grandfather rule if mailed before August 1.

MINNESOTA

Society Active

The following are quoted from the News Letter of the Minnesota Association

Be Wise — Sloganize!

Have you a slogan in your District. If not, here's the one we want all members to circulate—"Every Member Get A Member." As you know, the State Membership Committee has set a goal of 200 new members for the year, a total of 50 for the rural districts, 50 for Duluth and the Range, and 60 each for Minneapolis and St. Paul. If you keep this slogan in mind, you won't have too much difficulty filling your quota

We Make Page One

If you haven't already seen it, be sure to get a copy of the current issue of Minnesota Municipalities. Through the interest and cooperation of C. C. Ludwig, League Secretary, we were given the lead place in the magazine to explain the role of the professional engineer in municipal public works programs. The article Court accepted, on May 17, the filing of briefs by both parties on was written by President Stolte and it is intended to give local planning bodies a clearer picture of the role of the professional engineer in post-war planning. The professional engineer's training, experience, code of ethics and fee schedules are explained in detail. We suggest that you make sure that the proper authorities in your community have an opportunity to read the article.

Minneapolis Meeting

Twenty-four members of District 5 met April 28 at the Y.M.C.A. Guests were Don Sheldon of Minneapolis Honeywell; M. L. Jones of Dist. 4 and Harold Olson, State Secretary. Clifford Brandt, chairman of the membership committee explained that at each meeting he would present a list of 20 prospects. Each member was then urged to speak to as many of these prospects as possible, after which the committee would do follow-up work. Intensive discussion of M.A.P.E.'s legislative program is scheduled for the May 26th meeting.

St. Paul Meeting

District 4 members met May 19 at Hotel St. Paul and heard Paul Trimmer, Chairman of the Committee on Employment Practices, give a thorough report on his work. Papers read at the St. Louis meeting of the National Society were discussed, along with fee and salary schedules. Membership campaigning was stressed, and the meeting concluded with a discussion of the need for professional organization.

MISSOURI

Business Office Opened

From the Missouri Engineer one learns that the Missouri Society of Professional Engineers has opened an office in the Delmonico Building in Jefferson City with Mrs. L. M. Bell as stenographer and assistant to Secretary-Treasurer, H. J. Bruegging. Business hours will be from 12:30 to 5:00 p.m.

This action was one of the important steps taken by the Executive Board at its meeting March 19 at Jefferson City and is integral with the adoption of a budget providing expanded activities on all fronts for the coming year.

Among other things, the new office will also be headquarters for the Missouri Engineer with Secretary Bruegging resuming editorship. It is planned to return to monthly publication with an early issue.

Public Relations
Report of Committee

The Situation

It is the scientifically inclined mind to which the engineering profession appeals, and as a rule that type of mind is not much concerned about social contacts, or human relations, consequently many engineers start isolating themselves from outside activities early in their career. In college, very few participate in athletics, dramatics, debates, or campus activities. This carries through after graduation. The Engineer becomes so wrapped up in his job that he thinks his drafting board, his tee square and slide rule are the alpha and omega of the profession. Many engineers who come into a community on a construction job, lasting six months or a year or two, don't bother to identify themselves with any local organizations, service clubs, chamber of commerce, or P.T.A. That sort of attitude doesn't help promote respect for the profession or add to its prestige. He fails to realize that human relations, after all, play a major part in a man's life. After the World War in 1918, the Engineer was publicised as the savior of civilization, his prestige was at its highest, he was given every acclaim. But did he maintain it? No, he permitted other professions and occupations to push him aside and take positions of responsibility which were rightfully his. He was unorganized, there were few, if any, states licensing engineers, so the title "engineer" could be protected. Ditch-diggers called themselves sanitary engineers, and plow hands were agricultural engineers, salesmen called themselves engineers with some fantastic adjectives for a prefix. The public, not knowing how to differentiate, listened to the one with the loudest ballyhoo, and should not be found fault with, because the real engineer didn't bother his head to correct the misinformation that was being spread around by irresponsible persons calling themselves engineers. He smiled in a superior fashion and did nothing, little realizing that the term "engineer" was getting to mean almost anything but its actual definition.

The Remedy

The members of the Missouri Society of Professional Engineers must shoulder the full responsibility, both as individuals and as an organization, in taking such steps so that the Society as a whole, and its individual members will receive the recognition they are entitled to. To that end more attention must be paid and more time devoted to seeing that the work of the Society as well as its members is publicised. But it must be the right kind of publicity, not the kind to glorify the individual. Its purpose must be to reflect credit on the engineering profession. Newspaper articles should not, for example, state that John Smith, the Engineer, did an outstanding job on our new power plant, but "The Engineer, John Smith, did the job." Publicity to be successful, must first secure the attention of the public and then it must be held. This presupposes that engineers have a worthwhile cause, have developed mutual good feeling and understanding between people of various vocations and positions in life, have done their work so well that the public can depend on them for the correct answers to their engineering problems.

When this is true of a worthwhile project, well designed and well constructed, and then properly publicised, the prestige of the engineering profession is enhanced.

Suggested Procedure For Publicity

Contact should be made with local newspapers and articles prepared on new projects to be initiated, and again on the completion of any worthwhile piece of work. Stress the professional engineering work in connection with the project but soft pedal the individual. Try and establish contact with the local newspaper through the editor or reporters. Newspapers prefer prepared copy. Have a story to tell. Better nothiing at all than dead copy. Be brief. Use as few words as possible and still cover the ground. It is not a matter of how much, but how often you can get into the papers. Preparing your own story saves the editor and reporter's time. They like it. Copy should be typewritten, double spaced, on one side of sheet. Go after publicity, with stories having real news value. Do not expect your newspaper to come seeking you, do not even ask them to meet you half-way—go to them. Impress on the newspaper that the engineer is interested primarily in rendering the highest type of professional service to the community. Weekly papers give space to cuts. Pictures always attract attention. Pictures of the progress of plant construction, road work, grading, bridges, etc., before and after, or if it is an extensive job, progress pictures from time to time are always of interest to the folks in the community. To repeat stress the professional engineering phases, and keep the individual in the background.

Possible Fields Of Activity

Take an active part in community activities, do something you do not get paid for, Civilian Defense, Service Club, Chamber of Commerce, P. T. A., Church work. Offer to head a committee. Talk and preach safety, in the home, driving, pedestrians. It is not only an engineer's job but a fine opportunity for an engineer to show leadership in making his community traffic safety conscious, and at the same time get some real publicity for the engineering profession. Advocate the entrance of the community in which you happen to be living in the National Safety Council's National Traffic Safety Contest for cities. Offer to serve on a Safety Committee or head one. Outside of the three largest cities in Missouri, that is, St. Louis, Kansas City and St. Joseph, there are only three other cities in Missouri entered in the National Traffic Safety Contest last year. The National Safety Council, 20 N. Wacker Drive, Chicago, welcomes entries of this sort. While traffic Engineering is a highly specialized subject, the wealth of detailed information, data and instructions it makes available to entrants, enables any engineer to head a Safety Committee and carry through successfully, a traffic safety program in his community.

A Word To Chapters

Have a publicity committee. When any of our members have a job that is news, see that the local paper gets the story. Get acquainted with and cater to your editors and reporters—take them out to lunch now and then and pay for it. Under no circumstances let them pay for their lunch. Chapters should be listed in the telephone directory. This is excellent publicity and the cost is negligible. Suggest listing—Missouri Society of Professional Engineers, Southwest Chapter, John Smith, Secy. Jo. 683.

In Conclusion

Engineers are gifted with initiative and imagination. It always has been and still is being used for the benefit of mankind, with little thought or action in connection with their own welfare. The time is long overdue for them to begin doing something for themselves. If they will use some of that initiative and imagination to promote the prestige of the profession, engineering will take its place with the learned professions where it rightfully belongs.

Walter A. Heimbuecher, Chairman
Public Relations Committee

NEW JERSEY

Meeting of Trustees

Secretary Frederick D. Braun has submitted an abstract of the May meeting of the Board of Trustees of the State Society.

Quoting from the report:

The Board of Trustees of the New Jersey Society met at the Newark Athletic Club, Park Place, Newark, N. J. on May 12,

1944. Present were Engineers Anderson, Briggs, Colwell, Daily, Farmer, Hehn, Higgins, Jacobs, Jones, Kramer, Loede, Matte, McKee, Moran, Shaw, Wood, NSPE Director Wise, Pres. Krueger and your Secretary. Engineer Briggs, President of the Passaic Chapter and Engineer Thomas C. Wood who represented Legislative Chairman King were presented to the Board by President Krueger.

President Krueger traced our membership progress for 1944 on a special chart he prepared. To date we have only secured 60% of our 1944 membership quota. We must concentrate our efforts now on securing new members. Contact the new licensees and write them into membership. After July 1st, we can concentrate on membership renewals. President Krueger outlined a method of procedure to use in getting new members in each chapter area.

Essex reported 60% Hudson 80%, Monmouth Ocean 100%, Passaic 33% and South Jersey 60% of new members secured from lists of new registrants furnished by the State Registration Board recently.

Personal contact was emphasized as of the most importance in soliciting new members. The "New Jersey Engineer" is also very helpful in this endeavor.

President Krueger reported renewed activity in the Union County group which is now under new leadership. Definite progress is reported on their reorganization plans.

Engineer Higgins gave us a rousing "pep" talk to take back to our Chapters on what the National Society is doing and what it means to us individually. NSPE's accomplishments were roundly praised, especially since they have been attained on such a small outlay of funds. If our forebears had only organized NSPE years ago we would have made tremendous strides by now. Our full support of NSPE will flow back to the State and Chapter manyfold. We will all lose out if we do not work to protect our interests. Highlights of a general discussion followed: President Krueger pledged for the New Jersey Society 100% suppport of NSPE. Engineer Jones reported that two Missouri Engineers working for the Newark Planning Board have transferred their membership to Essex Chapter. Their NSPE membership made them "feel at home" here. Engineer Jacobs reported that he has been appointed to the Patents Committee of NSPE and he cited the importance of patent protection as an aid to our Profession. This is but another of NSPE activities.

President Krueger pointed out that Texas now has 800 members to our 600. Three Texans underwrote the Texas Society Budget for a year and this has provided a full-time Executive Secretary and office staff.

Business Manager Higgins and President Krueger both made frontal assaults on our procrastination in the matter securing our advertising quota for Volume 6 of the "New Jersey Engineer." We are behind our quota and the deadline has been advanced to June 1. Meeting our quota in advertising will insure the appointment of a full-time Executive Secretary who will really build up our Society like Texas. The really democratic way is for all of us to share the load. Monmouth Ocean Chapter was pointed out as the shining example of exceeding its ad quota. As in membership, the value of personal contact was stressed.

Public Relations Chairman Matte presented the following report:

To introduce an essay competition in the schools of Essex Chapter the aid of the representatives of the Planning Boards in 22 Essex County communities will be invited to a meeting of the Essex Chapter on May 18th to discuss the details. The text is "A Challenge To Our Community." The local planning board in each area is to be sponsor of the contest. They should provide awards for each high school, secure the cooperation of the local board of education in the contests, stimulate interest by providing an inspiring speaker to inaugurate the contest and to be responsible for the entries and to judge entries in their area.

The Essex County program will be used as a guide for other sections of the state. Details of the contest will appear in the New Jersey Engineer after the complete plan has been developed. A further report will be made at the June meeting of the Board of Trustees.

Progress was reported for the Salary and Fees Committee.

President Krueger reported that a special committee of Dr. Greene, Engineer James Kelly and Asst. Secretary McGuiness of the State Registration Board and he met with the Civil Service Commission seeking the answer to the question "At what level could requirements for Professional Engineers be applied?" This may lead to an amendment of the law or an opinion by the Attorney-General on Civil Service Classifications.

The following were appointed to the Building Code Committee; Heilmann—Essex; Clarke—Hudson; Szabo—Mercer; Birdsall—Monmouth Ocean; Wise—Passaic; Daley—South Jersey. Since Labor Commissioner Harper recognizes the values of suggestions and recommendations by our Society, this gives us a grand opportunity to make recommendations for revising out-moded Building Codes in New Jersey.

Your secretary reported that our Resolution requesting the appointment of a Secretary of Public Works in the Presidential Cabinet has been presented on Capitol Hill by NSPE and is being given favorable consideration.

Sincere tributes to the outstanding accomplishments of our late Vice President William A. Stickel was voiced by his friends after the Board stood in silent prayer for one minute. Your Secretary was directed to prepare a Resolution attesting to the grief and sorrow of the Boards over our great loss of leader and friend. His place will indeed be hard to fill.

Chapter news for the July issue of the "New Jersey Engineer" should be submitted on or before June 1st.

June 9th Board Meeting

The appended has been excerpted as is from the abstract furnished by Secretary Braun of the New Jersey Society.

* * *

Alternate NSPE Director Jones made a fine report on the activities of the National Society in session at Milwaukee, May 26 and 27, 1944. He reported that New Jersey was now entitled to two Directors at NSPE meetings. The next NSPE meeting is tentatively scheduled for Philadelphia in September. (Director Jones' report will appear in the July issue of the New Jersey Engineer.) President Krueger appointed Engineer Jones as the second Director from New Jersey and Engineer Hugh A. Clarke of Jersey City as Alternate Director. They will serve with Director Wise until the end of 1944.

* * *

President Krueger appointed the following Building Revision Committee to help draft a state-wide building code in cooperation with other professional groups: Engineers Szabo, Chairman, Heilmann, Daley, Birdsall, Wise, Clarke and Wilson.

* * *

Post War Planning Chairman Clarke has offered the services of his committee through the Governor to the new Bureau of Economic Development and reports that his offer was graciously received. The recent report of this committee is being circulated throughout the state through the local Chapters. His committee will watch events for post war trends which may necessitate a special Board meeting.

* * *

President Krueger reports that the special Civil Service Committee has met with the Civil Service Commission and that progress can be reported. Our State Registration Board has requested the Attorney-General for an opinion on "Responsible charge of work" which will determine the level at which engineering jobs require professional registration.

* * *

President Krueger outlined a method of raising a fund of $8500.00 to enable our Society to maintain a full-time Executive Secretary and office staff at some central location in the state. His enthusiasm was infectious and the Board members pledged generous sums individually. The following committee was appointed to handle this matter: Engineers Kramer (Chairman), Colwell, Clapp, Clarke, Szabo and McKee.

* * *

Correspondence between our Society and Labor Commissioner Harper has provided us with a wonderful opportunity to assist in the preparation of a new general building code for New

Jersey in cooperation with other professional, business and ownership groups.

* * *

NEW YORK

News of Board of Examiners

The American Engineer is indebted to Past President Steinman for the following items as presented.

State Examinations

The consolidated results of the last four examinations (June 1942, January 1943, June 1943, and February 1944) for Professional Engineers in New York State are as follows:

		Number		
	% of Total	Number	Passed	% Passed
Total Candidates	100	293	166	57
Graduates in C.E.	35	104	65	62
Graduates in M.E. (& Aero.)	24	69	46	67
Graduates in E.E.	7	20	13	65
Graduates in Chem.E.	7	65	20	13
Total Graduates	81	236	152	64
Partial College Credit	12	36	12	33
No College Credit	7	21	2	10

Note that the graduates in the different branches of engineering fared about equally well in the P.E. examinations, with the lowest showing for the C.E. graduates; also that, in the last four examinations, only two candidates without formal college credit succeeded in passing. In two years, only 166 candidates (out of 293) succeeded in passing the examinations.

The 236 graduates who took the examinations were graduated from 53 accredited colleges or schools of engineering. Of these, 23 schools (with only 1 or 2 candidates each) show a record of 100% passing; 3 schools (with 10 to 36 candidates each) show a record of 86 to 90% passing; 6 schools (with 3 to 18 candidates each) show a record of 63 to 67% passing; 3 schools (with 2 to 23 candidates each) show a record of 50 to 52% passing; 3 schools (with 4 to 8 candidates each) show a record of 25 to 38% passing, and 15 schools (with 1 to 6 candidates each) show a record of *zero* % passing. There is food for thought in this diversity of records: Near the top of the liist is a school with 10 candidates, of whom 9 passed. At the bottom of the list is a school (accredited) with 6 candidates, of whom *none* passed.

The consolidated results of the first two *Preliminary Examinations* (June 1943 and February 1944) for Engineers-in-Training in New York State are as follows:

		Number		
	% of Total	Number	Passed	% Passed
Total Candidates	100	126	71	56
Graduates in C.E.	44	55	31	56
Graduates in M.E.	31	39	27	69
Graduates in E.E.	9	12	3	25
Graduates in Chem.E.	6	7	5	57
Graduates in Aero. E.	2	3	2	67
Total Graduates	92	116	68	59
Partial College Credit	8	10	3	30

As in the complete P.E. examinations, the highest showing is recorded by the M.E. graduates. The low showing for E.E. graduates is not general; it reflects the failure of a large group from a single (accredited) school. The number qualifying as Engineers-in-Training in the first year is 71, as compared with 83 per year passing the P.E. examinations.

The 116 graduates who took these Preliminary Examinations were graduated from 22 accredited colleges or schools of engineering. Of these, 8 schools (with 1 to 6 candidates each) show a record of 100% passing; 5 schools (with 3 to 19 candidates each) show a record of 60 to 74% passing; 3 schools (with 2 to 27 candidates each) show a record of 30 to 50% passing; and 6 schools (with only 1 candidate each) had none passing. Near the bottom of the list is a school (accredited) with 27 candidates, of whom 19 failed!

Of the 116 graduates who took these Preliminary Examinations, 40% were out less than a half year, 49% were out from ½ to 4 years, and 11% were out more than 4 years. The poorest showing was made by those freshly graduated (out less than ½ year), with only 41% passing, as compared with an average of 59% for the entire group.

Personnel of Board

The present personnel of the N. Y. State Board of Examiners for Professional Engineers consists of Erich Hausmann, chairman, D. B. Steinman, vice chairman, Roy G. Finch, secretary, Norman R. Gibson, and Irving K. Peck. Mr. Peck is a well known Chemical and Mining Engineer, with offices in Binghamton; he has recently been appointed to the Board to fill the vacancy caused by the death of Virgil Palmer.

The 247th meeting of the Board was held in New York City on May 26. Officers were elected as named above. Of a total of 95 applications considered at this meeting, following prior review and some oral interviews, 8 were held for further consideration, 11 were assigned to the Preliminary Examinations, 64 were admitted to the Professional Examinations, 6 were rejected, and 6 were recommended for licenses. This was the last monthly meeting before the examinations to be held on June 30 and July 1.

Bronx County

Furnished by President Knight

"Several items of importance were discussed and acted upon at the June meeting of Bronx County Chapter. Engineer Charles F. Giraud, a member of the Committee on Minimum Fees and Salaries of the State Society gave a summary of the schedule of fees and salaries and a comparison of some of the items with those in the Ohio schedule and the Chapter Committee's schedule. Considerable interest and lively discussion was entered into by most of the members present including Engineer-in-Training Edward Levinowsky. President John H. Knight thanked Engineer Giraud on behalf of the members for his enlightening report.

President Knight appointed a committee of three members to represent the chapter at meetings before the Board of Standards and Appeals of the City of New York in connection with proposed simplification of the rules of the Department of Housing and Buildings governing the securing of Certificates of Occupancy. The committee appointed to act jointly with members of the Bronx Real Estate Board in this matter is, Chairman Engineer Arthur Jovis, Engineer Sylvester W. A. Murphy and Vice President Joseph T. Houlihan.

Engineer Israel A. Poles, Chairman of the Constitution Revisions Committee submitted the Constitution and By-Laws as amended by previous action of the Chapter. Upon motion, a copy of the revised Constitution and By-Laws was sent to the State Society for approval.

Three new members were elected to membership at this meeting, namely, Engineer William Roth, Engineer Albert Tepper and Engineer Morris Glick."

Broome Area

From President McFarland of the Broome Area Chapter comes the following:

At the Annual Meeting of the Broome Area Chapter, held Tuesday, June 13, 1944, the following officers were elected; President, William H. McFarland, 12 Elizabeth Street, Pt. Fickinson, Binghamton, N. Y.; Vice President, J. R. Stover, N. Y. S. Elec. & Gas Corp., Binghamton, N. Y.; Secretary-Treasurer, George W. Peterman, 3 Mather Street, Binghamton, N. Y. These officers took office immediately.

The speaker of the evening was Mr. James F. Fairman who spoke on "The Future of the Society". There were 44 in attendance.

Kings County

Summer Recess

Although there will be no regular meetings during July, August and September, the normal Chapter activities will be carried on as usual, and matters requiring immediate attention, may be submitted to the Secretary or to the Chairman of the particular Committee having jurisdiction, whose name and address may be found below.

John G. Foley, 132 77th St., Brooklyn — Membership
Paul Klepper, 135 Erasmus St., Brooklyn — Program
Carl M. Gilt, 1008 E. 39th St., Brooklyn, Legislative
Chas. W. Mitchell, 115 Montague St., Brooklyn — Publicity
William H. Byrne, 47-21 — 41st St., Long Island City — Resolutions
Chas. W. Franklin, 4 Grace Court Alley, Brooklyn — Ethics and Practice
James F. Fouhy, 1018 47th St., Brooklyn — Unsafe Buildings
Chas. W. Franklin, 4 Grace Court Alley — Finance

Frederick Ward

It is with deep regret that we learn of the passing of Frederick Ward who died suddenly on June 4, 1944, at the age of 65, following a brief illness.

Fred, as he was familiarly known to his associates, was *one of the founders of Kings County Chapter in* 1929 *and served as its first president.*

Westchester

From Chapter News

The May 16th meeting of the Chapter was held at the County Building, White Plains. Thirty members were in attendance. An interesting and instructive motion picture of the underwater construction of a large naval dry-dock was presented by Engineer DiGiacinto. This project was one of six similar undertakings carried out recently by the Navy, and the picture with accompanying remarks by Engineer DiGiacinto were extremely educational to most of those present, as to the construction methods involved in the under-water preparation of the site, the setting of forms and the continuous pouring of the concrete.

We Can't Squander Our Technicians

Under this heading F. C. Whitmore, Dean of the School of Chemistry and Physics at Pennsylvania State College has come out against the lack of deferment from the draft of men with needed technical training. He states there are nearly 10,000 misplaced technicians in the armed forces.

Professor Whitmore says "I fear very mnch that the fault is to a certain extent due to the natural modesty of technical men and their absorption in their technical work". And "the time has come when technical men must overcome their distatste for controversy and publicity and let the country know the truth".

What are we going to do about it?

Engineer For Senate

Engineer Felix J. Keavney has been selected as a candidate for the State Senate in the 29th District, which comprises Yonkers, Greenburgh and part of Mount Vernon. The last State meeting shows the need for an Engineer at Albany. Let us get behind Felix, — a member of our Chapter.

OHIO

Copied from The Ohio Engineer

President's Letter

Fellow Engineers:

The first half of 1944 is nearing an end. I believe we can say that Society progress so far this year has been satisfactory. The growth in membership has been steady and reasonably good. Your committees have been functioning. The Board of Trustees has held regular and well attended meetings.

The Board of Trustees is the governing body of the Society, with a representative from each of our 27 Chapters. Many new trustees have been in attendance this year and it is inspiring to see the broad, businesslike attitude of the Board in its handling of Society affairs.

With the coming of summer, there will be a slackening of some activities. The Board does not meet again until Friday, September 1. Some of the Chapters will not hold meetings through the summer. The important work of the Society will go on, however, and should not be neglected.

The new Membership Directory is being sent to you. A new printing of the Registration Law as amended to date is under way by the State of Ohio. Plenty of copies will be made available by the Society for use in the Chapters. Other new printed matter of interest and value to the membership is under consideration.

Let me wish you all a very pleasant summer vacation.

Keep up the good work of the Society and above all let us grow in "professional consciousness" — the pride and dignity which go with membership in a great profession.

Sincerely yours,
Tom Rolph

Board Meeting

The usual goodly number of new faces attended the pre-vacation meeting of the board of trustees of the Ohio Society. President Rolph called for the Treasurer's report immediately after disposing of the reading of the minutes. Treasurer Shank reported a net balance of $7,857.10.

The committee reports were called for next and Chairman Hale of Public Relations read a digest of the many suggestions he had received from his committee members. They sounded like the Professional Engineers in Ohio would be gaining more and more recognition as this committee carries out its program of promotion. Chairman Kerr of Membership illustrated how we had reached our new high of 2254 members. He did this with a colored map of Ohio showing those chapters which had gained 10% in four months as being in the pink and seeing things through "rosy" glasses. Those chapters with less than 10% were shown in darker colors. Chairman Kerr also called attention to the splendid showing of many chapters in that they have almost all of their 1944 dues in, already.

Chairman Graf of Chapter Relations, in his report, asked that Chapters report to him meetings of unusual interest and other activities which might be used by others. Engr. Graf then told about the new activity of the Akron Chapter which is conducting a school for some 25 candidates for registration as engineers who wish to take the examination in July. Chairman Hubbard of Problems of Engineers in Industry gave a report of some interest concerning his committee's luncheon meeting this afternoon. Engr. Hubbard reported that arrangements had been made to purchase some 5000 copies of the Registration Act for distribution among unlicensed men who are in the main employed in industry. Chairman Kennedy of Violations said that definite progress was being made in several cases. One in particular may develop into a test before the courts. Engineer Kennedy said that many chapters are handling their own local violations. He requested that chapters make reports to him of all such cases. After this report President Rolph asked that the budget for the violations committee be increased by $200 to take care of the possible needs of that committee. Chairman Kolhi of Salaries of Engineers in State Employment reported that 40 states had answered their questionnaire. Engr. Kohli said that a summary was being prepared from which graphs would be drawn to show how Ohio compares with her neighbor states, states of comparable size and the 40 states as regards salaries.

National Director J. S. Kennedy read his report of the N.S.P.E. Board meeting held in Milwaukee recently. National President H. E. Nold being present was called on for remarks. Engr. Nold wants all unusually good chapter activities sent to the Washington office for use by the National Society Committee on Chapter Activities. Other states are using our fee schedules with some variations. He then referred to the N.S.P.E. resolution requesting that licensed engineers use the words "Professional Engineer" on their letterheads.

Executive Secretary Chacey in his report to the Board said that the State office has 1000 copies of the National Society Brochure on hand which will be supplied to the Chapters on request. He also announced that copies of a pamphlet entitled "The Second Mile" written by President Wickenden of Case School of Applied Science were being ordered for the 27 chapter presidents. Chacey mentioned that one Chapter in New York had ordered 170 copies of our Engineering Fee Schedule.

During discussion of the title, Engineer, brought up by Trustee Bahin it was urged that we speak of Licensed Engineers rather than Registered Engineers. Action was taken to have the committee on Engineers in Industry draw up a resolution asking Licensed Engineers to use the words "Professional Engineer" on their letterheads.

The Board of Trustees adjourned to meet again in September. The Executive Committee was given power to carry on in the meantime. They plan to hold regular monthly meetings.

Editorial

The engineering profession must not pass up the opportunity to take the lead in post war planning. The public will expect the engineer to keep things moving after the war like he did in preparing for and carrying on the war.

In order to render this public service most effectively the engineer must think in broader terms than lines and grades. He is capable and should not fail to envision coordinated programs of financing, producing and servicing the material needs of mankind. Industrial production, construction and maintenance of public works and service of all kinds carried on simultaneously in proper balance will provide full employment..

Surveys and estimates show how many units of each commodity are required to fill the war gap, expand the market and make replacements. In this field the industrial engineer should establish a control which will provide full employment year after year without booms and depressions.

In public works he should maintain, expand and improve existing utilities to meet the growing demands. Such works to be most beneficial must conform to a master plan of social and physical development. The preparation of a master plan of development is also the responsibility of the engineer.

President Rolph has appointed a state post-war planning committee to advise and assist chapter committees on procedure. This committee has recommended that all chapters appoint a post-war planning committee. These chapter committees are urged to either take the lead in their community or to assist the established leading committee in their community. This will avoid duplication of effort.

The State post war planning committee is as follows: Fred Swineford, Chairman, Grover Clements, Murray Shaffer, A. P. Harness and Archie Ranney. To this committee will be added the chairman of each chapter committee to make a representative state wide committee.

Chapter Activities

Akron District — A brand new activity appears on the scene. D. W. Converse, Chairman of the Chapter's School Committee, reports that they have a school of 32 students in Mechanical, Electrical and Civil Engineering and Surveying. The classes are free and are serving as a review for the Examinations in July.

Canton Regional — "Bigger and better meetings" says Secretary Sperow in his letter to the members. "Bigger and better meetings" says President Weinland in his letter to the members. To facilitate this program President Weinland divided the chapter membership into eleven groups with captains to check up and promote attendance. The Secretary promised the members a good meeting with Burt E. Wyandt, Chief Engineer of the Lima Electric Motor Company, speaking on Magnetism.

Cincinnati — Four and one-half pages of closely typed minutes from Secretary LeFeber tell of an interesting meeting. Attendance reached 104, and eight new members were elected. Mr. Chas. M. Moss of Westinghouse Electric presented the subject "Electronics at work". Mr. Moss ventured the thought that as recorded history has referred to various ages or eras in terms of the predominating activity or custom, such as the stone age, etc., our present era may be referred to as the age of electronics.

Cleveland — The Cleveland Engineer attacks the Engineer "Black Market" in the Cleveland area as unlawful and asks its members to supply evidence which can be used to stop the activities of "engineering service companies" that do no real engineering but act only as brokers. Other items of interest to the Chapter make the Cleveland Engineer an outstanding Chapter publication.

Franklin County — The Columbus Engineer tells about the beautiful colored slides shown the members at their May meeting. Mr. Spindler, editor of the Highway Magazine, took the pictures of construction and scenery while in Alaska on an inspection tour of the Alaska Highway. Other items in the Columbus Engineer were the next meeting, a letter by the president and the listing of three new members.

Mahoning Valley — The minutes of the regular dinner meeting written by Secretary Stoll tell of Postwar Planning activities in the Chapter together with the usual activities of the committees on membership, program, public relations and publicity. Dr. B. S. Garvey of the B. F. Goodrich Company showed a movie on "How Industry Uses Rubber" and then gave a very interesting talk on synthetic rubber.

Marion — The usual dinner meeting was held in Delaware for the Chapter's May meeting says Engineer Zant in his newspaper release. About 60 members and guests were present to hear Professor Norman of Ohio State University speak about the Gas Turbine and jet propulsion. Four new members were introduced and welcomed.

North Central — A dinner meeting with music and entertainment was attended by 90 members and guests says Public Relations committeeman Monett in his release to the newspapers. President Moellenkamp proudly accepted from Engr. George Kerr the 1943 membership trophy. Harry L. Sain of the State Industrial Commission, speaking on "What Are You Afraid Of", entertained the group with his very humorous stories.

Springfield — The minutes of the May meeting of the Chapter sent in by Secretary Steiniger tell of discussions on transfers and other items of interest. Trustee Bolin gave his report of the State Board Meeting and Mr. Ken N. Cramer delivered an extremely interesting discourse on synthetic rubber.

PENNSYLVANIA

Pittsburgh Chapter

From Rebecca J. Nickles, Secretary of the State Board of Registration comes the following list of candidates qualified at its last meeting.

Professional Engineers

Adams, Walter F., 2616 Voelkel Avenue, Dormont, Pa.
Baggaley, Radph, Jr., 2222 "Eye" St., N. W., Washington, D. C.
Barry, T. J., Park Building, Pittsburgh, Pa.
Bolles, Frederick N., 415 Lexington Avenue, New York, N. Y.
Brand, Charles M., West Penn. Power Co., P.O. Box 1736, Pitts., Pa.
Browe, Ernest L., 738 Ormond Avenue, Drexel Hill, Pa.
Calhoun, John V., 349 Montgomery Ave., Bala-Cynwyd, Pa.
Carden, Charles S., 18 Sheridan Ave., Bellevue, Pittsburgh, Pa.
Claypoole, Lynnford E., 621 W. Penn St., Butler, Pa.
Coller, Carl, 114 N. Jardin St., Shenandoah, Pa.
Cozze, Michael R., 2125 Walton Ave., Pittsburgh, Pa.
Diehl, H. Fay, 113 Ferry St., Danville, Pa.
Donaldson, Robert R., 323 Fourth Avenue, Pittsburgh, Pa.
Eben, Christian F., Jr., 11 Clyff Lane, P.O. Box 19, Beaver, Pa.
Emich, Harris C., 1518 Walnut St., Philadelphia, Pa.
Estrade, Alfred A., 7950 Bayard St., Philadelphia, Pa.
Feinberg, Abraham, 1936 Noblestown Road, Pittsburgh, Pa.
Gale, Charles W., Surface Combustion Co., 601 Grant Bldg., Pittsburgh, Pa.
Grapp, Edward H., 1306 Methyl St., Pittsburgh 16, Pa.
Hamilton, Edward W., 465 Golden Hill Street, Bridgeport, Conn.
Hart, Leslie J., 43 Clifford Ave., Pelham 65, N. Y.
Hepler, Marvin M., 427 Westside Road, West Reading, Pa.
Hermann, Harold N., 26 East Sixth Street, Cincinnati, Ohio
Jenny, Richard, 625 Haydock Lane, Haverford, Pa.
Johnson, Fred H., 532 Landsdale Pl., Mt. Lebanon, Pitts., Pa.
Kershner, Phillip Q., 1 East Brown St., Norristown, Pa.
Landers, John J., 701 Crosby Bldg., 170 Franklin St., Buffalo, N. Y.
Maloy, John S., 14 Wood Street, Pittsburgh, Pa.
Melone, Anthony, 291 N. Washington St., Wilkes-Barre, Pa.
Mengers, Charles A., 1401 Arch Street, Philadelphia, Pa.
Mielke, Carl E., 235 Princeton Ave., Pittsburgh 2, Pa.

Miller, Wesley A., 5701 Elwood Street, Pittsburgh, Pa.
Orefice, Arden D. L., 121 Overbrook Blvd., Pittsburgh 10, Pa.
Petzold, Walter B., 424 Wyoming Ave., Scranton, Pa.
Prowse, Robert J., 1265 Wisconsin Avenue, Pittsburgh 16, Pa.
Schweinberg, Norman H., 1203 Swissvale Ave., Wilkinsburg, Pa.
Shallenberger, Charles, 529 West Ellet Street, Philadelphia, Pa.
Simon, Carroll W., 36 Runnemade Avenue, Lansdowne, Pa.
Simpson, Richard L., 11 Chartiers Place, Pittsburgh, Pa.
Singstad, Ole, 200 Madison Avenue, New York, N. Y.
Skinner, Dean C.. 153 Lloyd Avenue, Pittsburgh 18, Pa.
Sklar, Herman J., 1750 Georges Lane, Philadelphia, Pa.
Snellings, Herbert G., Box No. 7, Port Deposit, Maryland
Stefansky, Richard, 4842 Ellsworth Avenue, Pittsburgh, Pa.
Stock, Robert F., 826 Fordham Avenue, Pittsburgh, Pa.
Strobel, Peter A., 11 East 44th Street, New York, N. Y.
Sutton, Roy R., 14 Wood Street, Pittsburgh, Pa.
Wainwright, Walter S., 140 Cedar Street, New York 6, N. Y.
Walton, Joseph E., Amer. Bridge Co., 1619 Frick Bldg., Pitts., Pa.
Weichel, Edgar C., 234 Harrison Avenue, Scranton, Pa.
White, Paul A., 176 Main Stareet, Ringtown, Pa.
Zollinger, Walter H., 237 E. Elizabeth Avenue, Bethlehem, Pa.

Surveyors

Denninger, V. D., 1312 Oakmont Street, Pittsburgh, Pa.
Gorenflo, Fred A., 1118 W. 30th St., Erie, Pa.
Shull, Walter C., 2922 Locust Lane, Penbrook, Pa.

Recent Registrants

Admits New Members

The following additions to the membership of the Pittsburgh Chapter have been announced:

Marcel M. Fertif — 713 Princeton Blvd., Pittsburgh 21
Dean Cook Skinner — R.D. #3, Pittsburgh 2
Richard L. Simpson — 11 Chartiers Place, Pittsburgh 5
Carl E. Mielke — 235 Princeton Ave., Pittsburgh 2
Robert F. Stock — 826 Fordham Ave., Pittsburgh 26
Arden D. L. Orefice — 121 Overbrook Blvd., Pittsburgh 10
Richard Stefansky — 4842 Ellsworth Ave., Pittsburgh 13
Norman H. Schweinberg—1203 Swissvale Ave., Pittsburgh 21
Paul G. Shanor — 3014 Koppers Bldg., Pittsburgh 19
Ferd Dieffenback — 990 Greentree Road, Pittsburgh 20

Executive Board Meets

The following has been excerpted from the Minutes of the Executive Board meeting held in Harrisburg on May 27th.

The meeting of the Executive Board was called to order at 1:30 P.M. by President Sutherland. Members present: Hale Sutherland, President and National Director; Robert V. Hudson, Vice President; J. J. Paine, Vice President; Samuel Baker, Vice President; Ritchie Lawrie, Jr., Vice President; Russell S. Conrad, Executive Secretary; Victor J. Snyder, Director — Harrisburg Chapter; J. Rossa McCormick, Director — Northeast Chapter; L. E. Moody, Director — Philadelphia Chapter; John R. Shoffner, Director — Pittsburgh Chapter; LeRoy F. Christman, Director — Reading Chapter. Proxys Present: Ray F. Fuller, Philadelphia Chapter, for A. A. Townsend, Assistant Treasurer. Visitors Present: HuBert C. Eicher, Chairman, Constitution and By-Laws Committee; Louis Klauder, Chairman, Legislative Committee; Warren H. Hinks — Secretary, Johnstown Chapter; George H. Richardson, Member, Pittsburgh Chapter; Carroll R. Thompson, Member, Reading Chapter; William G. Bush, Vice President, Philadelphia Chapter; Albert C. Wood, Member, Philadelphia Chapter.

Meeting with Members of Former Registration Board

George S. Richardson, Chairman of the former State Registration Board, advised that he and Andrew Crichton had not served their full six years to the beginning of this year when the Governor reappointed them and also appointed Carroll Thompson, Edgar D. Sibley and William H. Lesser. Shortly after that Mr. Crichton resigned and Warren H. Hinks was appointed to fill the vacancy.

Engr. Richardson also told of a meeting on April 9 with the Joint State Government Commission of the General Assembly. The Commission seemed to be concerned primarily with the differences in the Engineers' Law as compared to registration laws for other professions. Engr. Richardson pointed out that our law conforms to the practice of all other States in requiring some experience after graduation, and also the difference of engineering work as compared to that of medicine and law, also, that the Model Law, which had been followed quite closely by other states require four years experience instead of two years, which Pennsylvania requires.

Vice President Lawrie advised he talked with Dr. Haas today and he was quite certain the Governor will give all members of the board recess appointments until the next Session of the Legislature, just as soon as the Governors' Convention is over. He feels that we should not take any action which could be construed by anyone as making an issue of this affair, therefore we should not attempt to stir the matter up by talking to Senators or anyone else, or it might create an issue. After all, the appointments were not turned down by the Senate; just no action was taken.

Engr. Hemphill, Chairman of the Legislative Committee, requested that the Board refer this matter to his committee and empower them with the authority to call upon the Governor at the first opportunity and request him to make recess appointments.

It was moved and seconded that the Legislative Committee be given the authority to proceed in any manner which, in their judgment they see necessary. Passed.

Reports of Committees

Chairman Hemphill advised that it is the hope of the Legislative Committee to meet with the Governor in the near future and requested that action be taken by the Executive Board granting to the Legislative Committee the authority to retain attorneys and assure them that after retaining the attorneys they will be paid at the proper time for their services.

It was suggested that Samuel I. Sacks, a member of the Society, be retained as legal consultant in view of his familiarity with the operation of the present Licensing Act and of acts of other states. John H. Fertig, Attorney in Harrisburg, has agreed to prepare the bill for introduction to the Legislature. It was estimated that approximately $1,000.00 would be needed.

Vice President Lawrie moved that the Secretary of the Society be instructed to send letters of appeal as drafted by the Legislative Committtee, to all members of the Society, to all registered engineers in Pennsylvania not members of the Society.

Students and Sub-Prof. Groups

Chairman Hudson requested that Engr. Victor Snyder be appointed to the committee as Assistant Chairman. Approval granted.

Chairman Hudson advised his committee was heartily in accord with the resolution of the Board of Directors of the National Society pertaining to Engineers-in-Training, which was adopted at the N.S.P.E. Board Meeting, Feb. 10 and 11, 1944, and moved that this policy again be approved and our Chapters urged to take action and the National Society so advised. Seconded by Engr. Snyder. Passed.

Constitution and By-Laws

Chairman Eicher advised that his committee had received Revised Constitutions and By-Laws from the Pittsburgh, Midwestern and Northeast Chapters. Proposed amendments to the State Constitution and By-Laws were presented and will have to be adopted before the above mentioned Chapters' Constitutions and By-Laws will be legal.

Report was received informally on account of lack of quorum and the Secretary was instructed to write the National Secretary to ascertain if there is anything in the proposed amendments that would be contrary to the National Constitution and By-Laws. Action on these applicants is scheduled for the June meeting.

Northeast Chapter

From the North East News

Applications for membership beginning July 1, 1944 have been received from Walter B. Petzold — The Hudson Coal Co., 424 Wyoming Ave., Scranton, Reg. No. 6287, and from Constantine Timothy Troy, 512 Second St., Towanda, Reg. No. 5882.

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SOCIETY DIRECTORS MEET

(*Continued from Page* 8)

that the engineer is willing to go the 'Second Mile'. Society has little evidence that the engineer is willing to assume his responsibility for the results of his work." His application of this thought impressed his engineer audience with the feeling that this "Second Mile" stage is the engineer's obligation to society beyond the call of duty and that as professional engineers they can develop public acceptance of the engineer's peculiarly significant place in the vast drama of human development. President Withey of the Wisconsin Society of Professional Engineers accepted the charter in behalf of the Wisconsin engineers with a few well chosen words of appreciation.

The meeting was then addressed by Mr. Bruce Thomas, the well known and able journalist and writer who has been close to the war in its many theaters of action. Mr. Thomas described at length and in detail that modern version of the hundred year old Dutch soldier known as the "Commando". He summed up his very lucid and thought provoking speech with the statement that, "So today the decent people in the world, the clean, the upright and the honest people are going to bless this man known as the Commando".

WHITHER ENGINEERING EDUCATION

(*Continued from Page* 13)

Throughout the educational process of training, there should be stressed the fact that engineers are human beings whose life work is among and concerned with other human beings. Spiritual concepts and values must ever be present to prevent the misuse and exploitation of science. To make man conscious of the fact that there are limitations to his role as administrator of earthly dominion should be no less the aim of education than to exhort him to material progress. Engineering must be the agent of human welfare and its application must not be destructive of human ends. Finally let us engineers and as humans remember that:

We are but forders in the stream of time
Spending whole decades vainly feeling for
A sober stone ere we put forth the foot
Each clicking of the clock announces change
But only centuries record advance."

At all times and in all climes it has ever been patent that man proposes but God disposes and humanity, particularly the scientist and engineer, can best justify its existence by honest endeavor, tempered with humility, born of the realization that man is cognizant of but a smattering of the laws and purposes ordained by the Great Engineer from whom emanated creation and who holds in the hollow of His hand the destiny of the universe.

WISCONSIN RECEIVES CHARTER

(*Continued from Page* 15)

The second part of this same Resolution requests that the Board of Directors of the National Society currently inform its Members of critical legislation or other governmental action, helpful or harmful, so that concerted support or opposition may be had from the individual Members; and that in respect to means of effective action the Society avail itself of the experience of the Washington representatives of the American Bar Association and American Medical Association in protecting the professional interests of their members; and of the United States Chamber of Commerce in respect of its activities in behalf of the small business man, which latter group includes the private practicing Professional Engineer. This portion of the Resolution was referred to the Legislative Committee.

As indicated above all Resolutions were handled through the Resolutions Committee of which Engineer Leland Post is Chairman and it is likely that he will make a separate report covering all of these Resolutions in more detail.

President Nold was authorized to cause an investigation to be made by an outside company or individuals qualified to carry on an investigation of the management of the Washington office and of the American Engineer and to present to the Society recommendations with respect thereto. The President is to obtain estimates of costs for such investigations and present a report to the Board of Directors before taking any decisive action.

The next meeting of the Board of Directors is to be held sometime in the month of September at a time and place to be indicated by the President, it being left to his judgment as to what State would be the most advantageous at that time.

WHAT'S NEW

And Coming In The Whirl Of Change

(News from industry — gathered by the publisher)

BY JOHN A. TALLANT,
MANAGER, TECHNICAL DATA
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DEVELOPMENTS IN THE FIELD OF SPECIAL-PURPOSE SYNTHETIC RUBBERS OF PARTICULAR SIGNIFICANCE TO ENGINEERS AND DESIGNERS

A thorough knowledge of synthetic rubber —what it is and what it will do—is indispensable to the engineer who is responsible for the effective utilization of resilient materials in their important and widely varied applications.

One common mistake is the belief that synthetic rubber is merely a make-shift substitute for the natural product. The fact that synthetic rubber has received its greatest development and publicity during a period in which natural rubber has been unavailable is mainly responsible for this erroneous impression. It was only natural to conclude that man-made rubber would never have existed had it not been a substitute, and would quickly disappear when the material it replaced was again available.

That such a conclusion is definitely incorrect becomes apparent when all the facts are known. Far from being a temporary substitute for natural rubber, synthetic rubber in its present state of development is not only the equal of tree grown rubber in important qualities, but it so far excells natural rubber in many respects that the two can scarcely be compared. This is particularly true of the special purpose synthetic rubbers which had become extremely important in many industrial applications, even before the war.

PROPERTIES OF SYNTHETIC AND NATURAL RUBBER

Property	*Natural Rubber*	*Synthetic*
Tensile Strength	Excellent	Excellent
Elongation	Excellent	Excellent
Resistance to Cold Flow	Good	Excellent
Resistance to Permanent Set	Good	Excellent
Resistance to Sunlight	Fair	Good
Resistance to Ozone	Good	Excellent
Resistance to Aging	Good	Excellent
Approximate Specific Gravity Basic Material	.93	1.00
Heat Resistance	Good	Excellent
Flame Resistance	Poor	Fair
Low Temperature Flexibility	Excellent	Excellent
Abrasion and Tear Resistance	Excellent	Excellent
Hardness Range	Excellent	Excellent
Color Range	Good	Good
Freedom from Odor	Good	Good
Resistance to Paint and Ink Driers	Poor	Excellent
Workability	Excellent	Good
Vulcanizing Properties	Excellent	Excellent
Adhesion to Metals	Excellent	Excellent
Adhesion to Fabrics	Excellent	Excellent
Resistance to Swelling in Lubricating Oil	Poor	Excellent
Resistance to Deterioration in Oil	Poor	Excellent
Resistance to Aromatic & Cyclic Hydrocarbons	Poor	Good
Resistance to Chlorinated Hydrocarbons	Poor	Fair
Resistance to Carbon Tetrachloride	Poor	Excellent
Resistance to Lacquer Solvents	Poor	Fair
Resistance to Gas Diffusion	Fair	Excellent
Dielectric Strength	Excellent	Fair
Electrical Conductivity	Fair	Fair
Resistance to Water Absorption	Fair	Excellent
Resistance to Strong Oxidizing Agents	Poor	Poor
Resistance to Other Corrosives	Good	Good

RESISTANCE TO GASOLINE AND OIL:—Ordinary rubber and Hycar vulcanizates were soaked in 100-octance aromatic gasoline, 40 percent of which was a mixture of benzene, toluene and xylene which are notorious for their rubber dissolving action. The Hycar compound swelled about 15 percent while the natural rubber compound in the same length of time, swelled several hundred percent and lost all of its usefulness. Hycar is inherently resistant to oil and ordinary gasoline and is practically unaffected by them.

HEAT SERVICE:—Many comparative heat aging tests for synthetic and natural rubber compounds, in both soft and hard forms, have been run. At 212 degrees Fahrenheit—the boiling point of water—rubber is considerably softened, while synthetic shows little change. Natural rubber loses practically all of its elastic properties and tensile strength when heated for 35 to 40 hours at 300 degrees Fahrenheit. Synthetic successfully withstands this same test, hardening slightly but increasing somewhat in tensile strength.

ABRASION RESISTANCE (WEARABILITY):—In the laboratory, the wearing ability of natural and synthetic rubber is determined by subjecting compounds of both materials to the same abrasion test and weighing the amount of each which is worn off. Such a test shows that abrasion resistance of the synthetic rubber is approximately 50 percent greater than that of natural product.

ELASTICITY AT LOW TEMPERATURE:—Many uses for synthetic rubber demand that it maintains its elastic qualities at temperatures 40 to 70 degrees below zero Fahrenheit which are encountered in Alaska and other arctic regions and particularly in high-altitude aviation. To meet these conditions, synthetic rubber is being produced which can be so compounded as to retain its flexibility at minus 60-70 degrees Fahrenheit, without appreciable sacrifice of oil resistance or other desirable properties.

RESISTANCE TO COLD FLOW OR CREEP: — Hycar vulcanizates, unlike natural rubber and many other synthetic materials, have a minimum tendency to cold flow or creep after they take the immediate permanent set from applied loads, even at elevated temperatures. This characteristic is of particular value in many mechanical applications.

HIGH TENSILE STRENGTH:—Maximum tensile strength of over 4,000 pounds per square inch, with an elongation of 600 percent, are possible but ordinarily not necessary. For most applications, tensile strengths of 2000-3000 pounds per square inch and elongations of 300-500 percent, are satisfactory and readily obtainable.

HARDNESS RANGE:—Synthetic compounds may be produced throughout a complete hardness range, from extremely soft to bone hard, or from 20 to 100 on the Shore A durometer scale. This permits the design of products for practically any industrial application of resilient materials.

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HARD SYNTHETIC RUBBER:—Tests have been made to compare bone-hard compounds, called Ebonars, with natural rubber Ebonite. The Ebonar showed much greater resistance to shatter than natural Ebonite, with equal tensile strength. Hycar Ebonar had the additional advantage of resisting temperatures approximately 100 degrees Fahrenheit higher than natural Ebonite without softening. The superior shatter resistance and heat resistance of Ebonar indicate its projected use in equipment subject to severe shocks and high temperatures.

RESISTANCE TO METALLIC ACTION:—One of the well known disadvantages of natural rubber is its rapid deterioration when used in contact with copper or metals containing copper. This disadvantage presents a serious problem in the rubber insulation of copper wire, the use of rubber hose connections on copper tubing, or the use of rubber gaskets, diaphragms and valve discs in copper alloy shut-off and regulating valves. For such applications, it is customary to tinplate these alloys to prevent actual contact between the rubber and the copper.

In the case of synthetic, this plating is not necessary since the copper or copper bearing materials have no deteriorating effect. For that reason compounds of this synthetic rubber can be used to great advantage in the field of electrical insulation and in many other industrial applications where rubber is in contact with copper.

SUMMARY:—These tests, based on the performance of oil-resistant synthetic rubber, clearly demonstrate the superiority of synthetic rubber over natural rubber in resistance to heat, oil, abrasion, aging, sunlight and certain forms of chemical action. The engineer, who is fully informed regarding the performance of synthetic rubber in the countless applications where it will render service never possible with natural rubber, stands at the threshold of an entirely new and unlimited field of outstanding accomplishments. By utilizing the superiorities of these versatile new materials, especially the special purpose synthetic rubbers, he can impart greater operating efficiency, economy and longer life to his products. By virtue of Hycar's tremendous advantage—its striking resistance to the effects of oil, gasoline and other fluids destructive to natural rubber—the engineer has opportunity to apply resilient materials in countless services never before as much as considered.

Indicative of the virtually unlimited future applications for synthetic rubber products is the war-performance record of this material. Warships, submarines, bombers and fighter planes, jeeps, trucks, tanks—all vitally depend upon the higher resistance of synthetic rubber to impact, abrasion, oil, heat and other elements of wear and deterioration which are destructive to natural rubber. Typical of many products which would have been impossible with natural rubber is the self-sealing aircraft fuel tank which is bullet-proof and which has saved countless lives in combat service.

Contrary to prevailing beliefs, development of synthetic rubber antedates Pearl Harbor by many years.

Intensive research in this country began in 1928 and the first commercial nitrile rubber developed in America was placed on the market by Hycar Chemical Company in 1940. This material, which was far superior to anything produced in Germany where early research in the field of synthetics was most aggressive and where production of the material started on a small scale about 1925, was enthusiastically received by some of the country's leading manufacturers, particularly in the automotive, aviation and petroleum industries. Today, proper compounding knowledge and continued development will produce synthetic rubber compounds which will meet virtually any requirement for resilient materials.

Synthetic rubber parts are now required to meet stringent specifications of the armed forces and various technical organizations such as the Society of Automotive Engineers and American Society for Testing Materials. These specifications could not have been met three years ago, but the ingenuity and diligence of rubber chemists, aided by the superb inherent characteristics of modern synthetic rubber, has made it possible to develop materials which satisfy such exacting standards of performance.

In conclusion, the reader should consider this one thought, regardless of his particular branch of engineering: the degree to which synthetic rubber has extended the range of application for resilient materials should serve as a challenge. The engineer who meets this challenge by becoming thoroughly familiar with the potential performance

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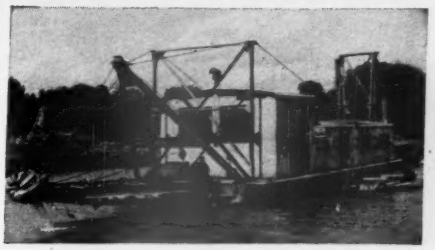

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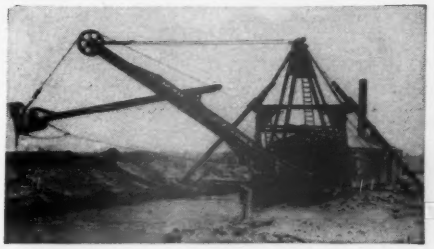

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TOTAL VOLUME OF SYNTHETIC RUBBER NOW USED BY AIRCRAFT INDUSTRY INDICATED BY TON REQUIREMENT FOR EVERY 4-ENGINED BOMBER

Evidence of the importance of synthetic rubber to aviation and the indication of the total volume of this material used in production of modern war planes are contained in figures released today by Hycar Chemical Company on the amount of synthetic rubber which is required for each 4-engined bomber.

The 4-motored bombing plane requires approximately one ton of compound synthetic rubber, involving 800 to 1000 pounds of the crude material. Of this total, probably 20 percent is represented by the linings of the bullet-sealing fuel cells, which must be made from an extremely oil-resistant synthetic rubber. The actual sealant in the tank wall is made of either natural or an oil-soluble synthetic rubber, such as GR-S. Some of the fuel cells also have an outer jacket of synthetic rubber for protective purposes and synthetic rubber cement is used not only in the original fabrication, but also in vital repair work.

Hard synthetic rubber sponge is used to fill in void spaces in wings to preclude the possibility of gasoline accumulating from slow leaks and forming a fire hazard. Strangely enough, this sponge does not absorb the gasoline, since each of the millions of tiny cells in the sponge is totally enclosed by a film of hard, gasoline-resistant synthetic rubber. This synthetic rubber sponge is also one of the lightest materials ever made, weighing less than 5 pounds per cubic foot.

Other somewhat similar applications which require oil-resistant synthetic rubber are bullet-sealing fuel hose, also oil hose and hydraulic hose for various controls. Natural rubber cannot be used in these applications because of the destructive action of gasoline, oil and the fluid used in the hydraulic control systems. These liquids have little effect on oil-resistant synthetic rubber. This resistance to the fluid used in hydraulic control systems explains why synthetic rubber is also employed in accumulator bags of which each 4-engined bomber has several, including controls for fuel pressure, oil pressure, brakes, propeller pitch, landing gear and similar applications.

Other uses requiring the oil-resistant type of synthetic rubber are diaphragms for carburetors, fuel gauges and various fuel systems and control system valves. Gaskets, packings and seals for these items, as well as for fuel pumps and oil pumps necessitate the use of oil-resistant synthetic rubber.

Another important use for synthetic rubber is in connection with de-icing equipment where a special sunlight-resistant compound is used as a veneer on the expanders. Expandable protective sleeves for landing gear and similar mechanisms are also made from oil and sunlight resistant synthetic rubber.

Further, the oil-resistant product is used for the covering of ignition cables while other types of synthetic rubber are employed for the actual insulation of wiring and other electrical equipment.

Also worthy of mention are the smaller items such as line supports, clips and grommets of which literally thousands are used on a 4-motored bomber. These parts are generally manufactured from an oil and sunlight resistant synthetic rubber to insure long life and trouble-free service.

Practically all of the items mentioned are those involving applications where natural rubber would either be a poor substitute or could not be used at all due to the fact that it would be unfavorably affected by oil, gasoline, heat, sunlight or normal aging. Truly, the modern war-plane would not be possible were it not for synthetic rubber.

It should be pointed out that the figures given here are entirely exclusive of any use of synthetic rubber for airplane tires. That such tires have been made from synthetic rubber is common knowledge and it is likely that it will be still more widely employed in the future. If synthetic rubber tires were included in the weights given, the total amount of synthetic rubber in the plane would be greater by several hundred pounds.

Many different types of synthetic rubber are used in the various applications here mentioned. The greater portion of the production now goes into these uses.

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